



CITY OF LODI

COUNCIL COMMUNICATION

AGENDA TITLE: Public hearing to receive public comments on the Final Draft of the City of Lodi Source Reduction and Recycling Element (SRRE)

MEETING DATE: February 5, 1992

PREPARED BY: Jerry L. Glenn, Assistant City Manager

- RECOMMENDED ACTION:
- a) That City Council receive public *comments* on the Final Draft SRRE.
 - b) That City Council approve the Negative Declaration as adequate environmental documentation for the SRRE.
 - c) That City Council approve the Source Reduction and Recycling Element,

BACKGROUND INFORMATION: In order to comply with the environmental review process which is required by the California Environmental Quality Act, EMCON Associates has prepared an Initial Study for the SRRE. Copies of this initial study are available for review in the office of the City Clerk. The Community Development Department has reviewed the initial study, and has issued a Negative Declaration (see attached Exhibit A). The Negative Declaration is now presented to City Council for their consideration and approval.

During the entire length of calendar year 1991, the City of Lodi Solid Waste Management Task Force (SWAM Force) worked very closely with EMCON Associates to prepare the final draft of the Source Reduction and Recycling Element. Citizens have received a great deal of information concerning the SRRE: The Lodi News Sentinel has done an outstanding job of informing the public, especially regarding the three cart system. Tamma Ademek has written at least six articles specifically on this subject. The Sentinel also prints the "Wasteline" column free of charge every second Monday. An article on the SRRE has also appeared in the Lodi City Newsletter.

Citizens have already been given ample opportunity to comment on the SRRE: On October 9, 1991, the SWAM Force conducted a public hearing on the preliminary draft SRRE. All input received at the public hearing, and all subsequent calls and letters received by their secretary have been considered by the SWAM Force. In addition, the SWAM Force has received written comments from California Integrated

APPROVED

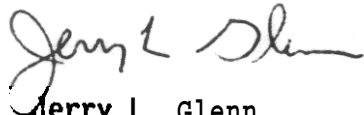
THOMAS A. PETERSON

Public hearing to receive public comments on the Final Draft of the City of Lodi
Source Reduction and Recycling Element (SRRE)
Page two
February 5, 1992

Waste Management Board staff, the San Joaquin County AB 939 Local Task Force, County Public Works - Solid Waste Division, and Delta Container Corporation. All of the above input has been considered by the SWAM Force and EMCON Associates in the preparation of the final draft SRRE which is now presented to City Council for their consideration and approval.

FUNDING: None Required.

Respectfully submitted.



Jerry L. Glenn
Assistant City Manager

JLG:tp

Prepared by: Kirk J. Evans
Administrative Assistant to the City Manager.

EXHIBIT A

NEGATIVE DECLARATION

Notice is hereby given that the City of Lodi Planning Department has determined that the following proposal will have no "Significant Impact on the Environment". Supporting documentation is available in the form of a "Preliminary Environmental Assessment" and is available for public review in the Planning Department Office, City Hall Building, 221 W. Pine Street. Anyone wishing to appeal the issuance of this Declaration to the Planning Commission may do so no later than the date indicated as "Last date to Appeal".

Date Jan. 6, 1992 Project Title: City of Lodi Source Reduction and Recycling Element

Responsible Agency: Lodi Plannina Dept. Contact Person: David Morimoto

NAME OF PERSON, FIRM, OR AGENCY UNDERTAKING PROJECT:

City of Lodi

| | | |
|-----------------------------|-----------------|--------------------|
| Address: | city: | County: |
| <u>221 West Pine Street</u> | <u>Lodi</u> | <u>San Joaquin</u> |
| Area Code: | Phone: | |
| <u>209</u> | <u>333-6711</u> | |

PROJECT DESCRIPTION OF NATURE, PURPOSE, AND LOCATION

The purpose of the source reduction and recycling element (SRRE) is to provide the

City of Lodi and the City's solid waste management task force (SWAM) with a current

comprehensive update on the status of solid waste management in the City and to

outline the City's plan to achieve and exceed the landfill diversion goals mandated

by the State of California. The program will be implemented City-wide.

| | |
|-----------------------|---------------------------|
| Project Location City | Project Location County |
| <u>LODI</u> | <u>SAN JOAQUIN COUNTY</u> |

| | |
|----------------------|--|
| Last Date to Appeal: | Address Where Preliminary Environment Assessment is Available: |
|----------------------|--|

February 3, 1992

LODI CITY PLANNING DEPT.
221 W. Pine St., Lodi, CA 95240
Phone: (209) 334-5634

PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA,

County of San Joaquin.

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the Lodi News-Sentinel, a newspaper of general circulation, printed and published daily, except Sundays and holidays, in the City of Lodi, California, County of San Joaquin, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court, Department 3, of the County of San Joaquin, State of California, under the date of May 26th, 1953, Case Number 65990; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

January 15,

all in the year 19.....⁹²

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Lodi, California, this15th day of
January, 19.....⁹²

Signature
Signature

This space is for the County Clerk's Filing Stamp

Proof of Publication of

City of Lodi Source Reduction and Recycling
Element

NOTICE OF NEGATIVE
DECLARATION FOR
CITY OF LODI SOURCE REDUCTION AND
RECYCLING ELEMENT

Notice is hereby given that the Community Development Director has filed a Negative Declaration for the City of Lodi Source Reduction and Recycling Element. The purpose of this element is to provide the City of Lodi and the City's solid waste management task force with a current comprehensive update on the status of solid waste management in the City and to outline the City's plan to achieve and exceed the landfill diversion goals mandated by the State of California.

Information regarding this item may be obtained in the office of the Community Development Director at 221 West Pine Street, Lodi, California. All interested persons are invited to present their views and comments on the Negative Declaration. Written statements may be filed with the Community Development Director at any time prior to February 3, 1992.

By Order of the City of Lodi:
JAMES B. SCHROEDER, Director
Community Development Department
Dated: January 13, 1992

Jan. 15, 1992

— 2541

PROOF OF PUBLICATION

IV. Determination

On the basis of this initial evaluation

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

1-7-92
Date

Carol Morimoto, Senior Planner
Signature and Title

For

204 E. Tokay St.
Lodi, Ca. 95240
Feb. 5. 92

RECEIVED

FEB-5 PM 2:50

LUCAS R. RENO
CITY CLERK
CITY OF LODI

To Whom it May Concern:

I cannot attend the meeting tonight due to transportation and especially health problem. I am very much apposed to having to pay for and hauling out a large garbage bin to the front of my home.

This morning my 30 gallon lined can was only about one fourth filled while is the case all winter and spring months. Barely full during summer and Fall.

I have lived in this home many many years. I and other seniors feel that we are being forced out of our dear homes because we cannot handle these now hardships brought on by the City of Lodi. Please take us into consideration.

Yours truly,
Hazel Youngman

City of Logi

Wednesday Feb 5-92

7 to 9 meeting

(Concerning Garbage plans)

Initial Study for the City of Lodi Source Reduction and Recycling Element

Prepared for
City of Lodi
December 1991

Prepared by
EMCON Associates
1433 North Market Boulevard
Sacramento, California 95834

Project F64-01.01

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PROJECT DESCRIPTION

Background and Need for Project

Introduction

As the population in California expands, so does the need for proper solid waste management systems. Waste management in California now faces the toughest laws in the nation. The California Integrated Waste Management Act of 1989 (commonly called Assembly Bill [AB] 939) gives city and county governments specific responsibilities to plan for and to accomplish high levels of diversion of resources from landfill disposal. Traditionally, this had been the responsibility of county governments. By January 1, 1995, cities and counties *must* divert 25 percent of their solid waste from landfills through source reduction, recycling, and composting. By January 1, 2000, a 50 percent diversion rate must be achieved. A diversion rate of 10 percent achieved through transformation can be included as part of the 50 percent diversion rate goal for plans submitted after January 1, 1995.

The purpose of the source reduction and recycling element (SRRE) is to provide the City of Lodi (City) and the City's solid waste management task force (SWAM) with a current comprehensive update on the status of solid waste management in the City and to outline the City's plan to achieve and exceed the landfill diversion goals mandated by the state of California. The plan recommends that the citizens of Lodi, the City administration, SWAM, and the local franchise hauler, California Waste Removal Systems (CWRS), play leadership roles in the development of the programs outlined in the SRRE.

Integrated Waste Management Planning

AB 939 established a new hierarchy for management of solid wastes. At the top of the hierarchy is source reduction, the preferred management

method which is intended to reduce the amount of wastes which are generated at the source. At the second tier of the hierarchy is recycling and composting. AB 939 and its implementing regulations stress source separation of recyclables and compostables. The lowest level and least preferred management method is reserved for landfilling and transformation (or incineration). Landfilling is intended to be used only for those materials which cannot otherwise be reduced, reused, or recycled.

The old adage of "out of sight - out of mind" no longer holds true. AB 939 challenges Californians to think about their buying habits and about what they throw away. More and more, the state's citizens and businesses will be separating wastes into its component parts so that they can be reused rather than cast off as unwanted discards.

The regulations which have been promulgated to implement AB 939 require each SRRE to contain nine specific components - each dealing with a specific aspect of integrated waste management: waste generation, source reduction, recycling, composting, special waste, public education, disposal facility capacity, funding, and integration. The cornerstone is the waste generation component which estimates two things: (1) the composition and quantity of the wastes which are being disposed of and (2) the composition and quantity of wastes which are currently diverted from disposal through source reduction, recycling, and composting. When those two elements are combined, the resulting total is the amount and composition of wastes which are generated within the City of Lodi. The diversion rate, taken as a percent of the wastes which are generated, provides the basis for measuring progress toward the 25 and 50 percent goals established by AB 939. The composition of wastes which are disposed of will help the City determine which materials can be diverted from the wastestream so that plans and programs for their diversion can be developed.

Summary of Waste Generation in Lodi

The City landfilled an estimated 67,231 tons in 1990, diverted an estimated 81,432 tons (of which 45,000 tons are inert materials), and transformed an estimated 2,507 tons. Total waste generation for the City is 151,170 tons in 1990. Of the quantity of wastes generated, less than 1 percent is source reduced, almost 46 percent is recycled, and approximately 8 percent is composted. A good portion of the diversion rate comes from waste types (scrap metals, food processing wastes, and inert materi-

als), which are the subject of some debate among legislators and special interest groups as to whether or not they should be counted in the diversion totals. since these are not currently disposed of in large quantities and some believe that they should not count towards diversion. In Lodi's case, inert materials such as concrete, dirt, and asphalt were excluded from consideration, the diversion rate for the City would be reduced to almost 35 percent. The City will need to closely monitor pending legislation to assess its impact on the wastestream.

Of the waste types which are disposed by City residents, paper represents almost 27 percent; plastics represent almost 8 percent; glass is 3 percent; metals are over 9 percent; yard wastes are over 17 percent; other organics including food, wood, and textiles are over 27 percent; and other wastes (inert materials and household hazardous wastes) are over 8 percent.

As a result of the waste disposal study which was conducted by San Joaquin County, the following waste types should be targeted for recovery in the short-term time frame (January 1, 1991 to December 31, 1994).

| Waste Category | Waste Type | Composition¹ |
|--|-----------------------------------|--------------------------------|
| Paper | Corrugated Cardboard/Kraft | 7.26% |
| | Newspaper | 3.19% |
| | Other Paper | 6.62% |
| Plastics | HDPE | 0.61% |
| | PET | 0.13% |
| | Film | 2.79% |
| Glass | Recyclable Glass | 1.9% |
| Metals | Ferrous Metals | 6.11% |
| Yard Wastes | Leaves, Grass, and Brush | 17.39% |
| Other Organics | Food | 10.98% |
| | Rubber/Tires | 1.64% |
| | Wood | 8.01% |
| | Textiles | 6.29% |
| Other Wastes | Inert Solids | 7.43% |
| ¹ Expressed as a percent of wastes disposed of. | | |
| Source: San Joaquin County, Appendix C | | |

Figure 1 summarizes waste disposal composition information from the County's study for Lodi.

Summary of Selected Programs, January 1, 1991 to December 31, 1994

The City is fortunate to have a franchise waste hauler, CWRs, who has been at the forefront of integrated solid waste management. The City's existing diversion rate is largely the result of efforts by CWRs. Less waste which is hauled to the county for disposal saves Lodi residents and businesses money, but also, more importantly, conserves valuable landfill space. The success of the short-term programs in the SRRE will continue to rely on this public-private partnership between the City and CWRs.

Because the success of these programs depends so much upon the efforts of CWRS, the City intends to monitor CWRS' programs and diversion rates very closely by requiring semiannual progress reporting.

In the short-term time frame, the city intends to convert Lodi residents over to a semiautomated/automated collection system consisting of three-wheeled carts, typically with one cart for refuse, one cart for yard waste, and one cart for commingled recyclables. The size of cart which may be used in the short term is proposed to be flexible to maximize use of the existing cart supplies. Where the previous curbside recycling program was voluntary, carts for recyclables and compostable materials will be made available to all single family residents. At the same time that the City converts to the three-cart system, the City will institute a new rate structure where the cost of second and subsequent refuse containers will cost more than the first container. This is an inverted or inclining rate structure. CWRS believes that this new rate structure will encourage waste reduction and recycling (CWRS, 1991).

Other short-term activities will focus on public education and information. Here again, CWRS has been and will continue to be at the forefront with its work with the Lodi Unified School District and other local schools, a newsletter, speakers' bureau, and community accounts program to mention only a few. CWRS will continue these programs, and in most cases expand them to address the City's upcoming new recycling programs. CWRS has also been at the forefront offering technical assistance programs and waste audits to local businesses and industries desiring waste minimization programs. These programs will continue and expand over the short term.

The City's role in this effort will be to coordinate with local community groups and nonprofit organizations; develop a city-sponsored public recognition and awards program; and to develop a block leader program to encourage participation in CWRS' recycling programs, using the City's community service officers. The City will also be involved in developing procurement guidelines to encourage City departments to buy recycled products and amending City zoning and building codes to incorporate recycling into new developments. In addition, the City will be looking at ways to create local markets for recyclable materials by encouraging local use of recyclable materials and compost and encouraging small industries which use secondary materials as feedstock.

Another major activity during the short-term time frame will involve CWRS' efforts to expand its materials recovery and composting facility. An environmental impact report for this facility has been prepared, which is planned to be expanded onto property adjacent to the Lodi Transfer Station. In addition to environmental review, CWRS will need to complete final site design and apply for operating permits from the California Integrated Waste Management Board (CIWMB), the Regional Water Quality Control Board, and the San Joaquin County Air Pollution Control District. This facility is expected to be completed and fully operational by the medium-term time frame.

CWRS has also applied for a use permit to relocate its collection corporation yard and include an additional buy-back facility at this location. There is the potential that this site can be converted to a recycling processing center subsequent to a review whether an additional environmental assessment for this project is required. In addition, CWRS will begin separating tires and white goods at the Lodi Transfer Station.

Summary of Selected Programs, January 1, 1995 to December 31, 1999

In the medium term, the CWRS expanded materials recovery and composting facility will be fully operational. This facility could ultimately serve as a regional composting center for northern San Joaquin County. Other activities during the medium term will focus on monitoring programs which were implemented in the short term and fine tuning them as needed.

Legislative Basis for the Source Reduction and Recycling Element

In September 1989, the California legislature passed AB 939, the California Integrated Waste Management Act of 1989. This bill was signed into law by Governor George Deukmejian on September 29, 1989, and filed with the Secretary of State on September 30, 1989. This legislation was drafted in response to the need to divert materials from landfills in order to preserve decreasing landfill capacity and natural resources. AB 939 mandates that by January 1, 1995, each California city and county must divert 25 percent of all solid waste from landfill or transformation facilities through source reduction, recycling, and composting activities. By January 1, 2000, the required diversion rate is 50 percent, which can include a

diversion rate of up to **10** percent from transformation processes such as waste to energy.

AB 939 replaces the existing county solid waste management plan process with an SRRE for each city and county wastestream and an integrated waste management plan (IWMP) for each county. AB 939 restructures the solid waste management program in California with the objective of implementing an aggressive integrated waste management program. promoting, in order of priority, the following waste management practices:

- source reduction
- recycling and composting
- environmentally safe transformation (incineration, pyrolysis, or biological conversion) or land disposal
- environmentally safe land disposal

City Requirements

By July 1, 1991, AB 939 requires each city to prepare, adopt, and submit to the county an **SRRE** for management of solid waste generated within the city that includes all of the following components:

- a waste generation component
- a source reduction component
- a recycling component
- a composting component
- a special waste component
- an education and public information component
- a disposal facility capacity component
- a funding component
- an integration component

County Requirements

By July 1, 1991, AB 939 requires each county to prepare an **SRRE** for its unincorporated areas with components the same as those in the city ele-

ments. Each county must also prepare a countywide IWMP and a county-wide siting element specifying areas for transformation or disposal sites to provide capacity needed for a 15-year period. so that solid wastes generated in the county that cannot be reduced or recycled will be handled safely.

Time Extension

AB 2092 (proposed March 8, 1991) was intended to extend the deadlines for the city and county SRREs and household hazardous waste elements (HHWEs) until January 1, 1992. The bill would also have required each city and county to prepare and submit a written report on the status of its SRREs and HHWEs to the CIWMB by July 1, 1991. Californians Against Waste attempted to amend the bill to remove inert materials, scrap metals, and sewage sludge from the list of what counts towards the 25 percent diversion goal, which has stalled its progress through the legislature. According to a September 17, 1991, legislative update prepared by the Santa Clara County Office of Toxics and Solid Waste Management, Assemblyman Byron Sher is unwilling to extend the deadlines without "clarifying the rules of the game." According to the update, Assemblyman Sher believes the original legislation needs reform as he believes that jurisdictions are meeting the letter of the law but not the intent by counting existing diversion activity that occurred without action by the jurisdictions. This bill is not expected to be signed before the early part of 1992.

General Requirements

The required waste diversion amounts will be based on the calculated amount of solid waste existing on the date of approval of the city or county SRRE.

To determine the base rate of solid waste from which these recycling levels will be calculated, "solid waste" includes only

- materials that are normally disposed of at a landfill or transformation facility
- solid wastes currently diverted from a landfill or transformation facility because of source reduction, recycling, or composting programs

Agricultural wastes and other wastes not normally disposed of at landfills are not included in this base rate calculation.

The 50 percent diversion rate may include up to 10 percent diversion through transformation, provided that the front-end removal of recyclable materials and other specified conditions are met.

Other Provisions of AB 939

Revisions to existing law in AB 939 include (1) replacement of the California Waste Management Board by a California Integrated Waste Management Board with six full-time members, (2) implementation of new requirements in the city and county waste management planning process, (3) recasting of the waste management framework, and (4) various funding mechanisms for the required programs and plans. The state has hired 250 new employees to staff the new CIWMB. The following requirements were recodified by AB 939:

Solid waste facilities. AB 939 establishes a comprehensive statewide system of permitting, inspections, enforcement, cleanup, maintenance, and closure for solid waste facilities. While the system will continue to be implemented by local jurisdictions where applicable, the state's role has generally been strengthened. Specifically, local enforcement agencies (LEAs) will be subject to CIWMB certification. The CIWMB will prepare and adopt certification regulations specifying requirements that the LEA shall meet before being designated as an enforcement agency.

The CIWMB will also adopt minimum standards for solid waste handling and disposal to protect air, water, and land from pollution. Owners or operators of solid waste landfills must also provide financial assurances for closure and postclosure maintenance.

Enforcement. AB 939 outlines a system of civil penalties, corrective actions, appeals, and judicial review for the enforcement of terms and conditions of solid waste facility permits. The CIWMB may issue a cease and desist or cleanup and abatement order if (1) the LEA fails to issue

such orders and (2) the CIWMB agrees that such orders need to be imposed.

Solid waste disposal **site** cleanup and maintenance. Every operator of a solid waste landfill required to have a permit will be assessed a fee which will be placed in the existing solid waste disposal site cleanup and maintenance account in the solid waste management fund. Money in the account will be controlled by the CIWMB and allocated to cities and counties for uses regarding the safe operation, closure, and maintenance of solid waste landfills.

Household hazardous wastes. AB 939 requires the CIWMB to develop and implement a public information program to provide information on the proper disposal of household hazardous wastes and give technical assistance to local public agencies to establish household hazardous waste management programs.

Finances. Every operator of a solid waste landfill shall pay a quarterly fee to the Board of Equalization, based on all solid waste disposed of at each disposal site on or after January 1, 1990. The money will be used for administration and other purposes specified by the legislature, which will appropriate funds from the account.

Garbage and refuse disposal. AB 939 establishes criteria for (1) the formation of garbage disposal districts, funded by property taxes, (2) franchise waste management within a county, (3) **contract** waste management within a city, and (4) solid waste enterprises to operate within a community. **It also contains** restrictions on burning garbage.

Relationship of AB 939 to Other Legislation

Several pieces of cleanup legislation related to AB 939 have passed that modify the impact of the legislation. These bills include

Senate **Bill (SB) 1322** This bill establishes a comprehensive set of state programs to promote (1) integrated waste management, (2) source reduction, and (3) market development for recovered materials. SB 1322 will establish recycling market development zones with regulatory and fiscal incentives. In addition, the CIWMB will be required to provide technical assistance to enable LEAs to conduct waste reduction evaluations and implement recovery of high-grade white office paper. A statewide public information and education program will be initiated to encourage participa-

tion by the general public, business, government, and industry in all phases of integrated waste management.

Assembly Bill **1820**. **AB 1820** permits the use of pre-existing data or studies that accurately characterize the waste generated and disposed of within the jurisdiction. This bill requires (1) only the amount of seasonal sampling necessary to achieve the 25 percent diversion target for the 1995 deadline (rather than the "maximum extent possible"). (2) the constituent materials identified in the waste characterization to be representative of the solid waste generated (in contrast to the former language: to be representative "to the maximum extent feasible"), and (3) waste quantities to be "as accurate as possible" to enable the **CIWMB** to accurately measure the diversion requirements.

Assembly Bill **2707**. This bill requires each city to submit a separate HHWE to the county by July 1, 1991. **AB 939** had included a household hazardous waste component in the SRRE. As a result of **AB 2707**, this component was elevated to the status of an "Element."

Assembly Bill **3992**. This bill defines "solid waste" for the purpose of determining the base amount from which diversion levels shall be calculated. It also requires the **CIWMB** to consider only relevant circumstances in determining civil penalties for any city or county which fails to implement its SRRE.

Waste Generation

In 1990, 67,231 tons of solid waste were disposed of by the City of Lodi residents.

Twenty-nine percent of the City's disposed wastestream is generated from residential sources, while 17 percent is from commercial and 21 percent is from industrial and roll-off boxes. Thirty-three percent is from self-haulers who haul their own waste to San Joaquin County's landfill or to the Lodi Transfer Station. Almost 54 percent of the City's wastestream is diverted from landfill disposal through a wide variety of recycling, source reduction, and composting activities, including CWRS' extensive commercial and industrial source separation programs.

Some waste is diverted from disposal but is not considered "countable" towards diversion rates due to the fact that these wastes (tires and wood)

are burned at waste-to-energy facilities. This is called transformation in AB 939.

Lodi's Waste Diversion Program History

The following is a brief history of the waste diversion programs implemented in the City.

Tokay Recycling is a **buy-back/processing** center located in Lodi. Tokay Recycling accepts all **materials** for which there is a market including high density polyethylene (HDPE) and telephone books. It accepts industrial and postconsumer corrugated high-grade paper (computer paper, colored, and **white** ledger), newsprint, polyethylene terephthalate (PET), HDPE, refillable beverage containers, California redemption glass, used beverage containers, scrap aluminum, nonferrous metals (brass, copper, **etc.**), and phone books.

Ramrock Environmental Recycling Company, Incorporated recycles asphalt, broken concrete, and reinforced concrete generated within the City. It is located just outside of Lodi in Lockeford.

California Waste Removal Systems, Incorporated is located in Lodi and provides an extensive array of comprehensive integrated solid waste management services to the City. These services include solid waste collection services and operation of the CWRS materials recovery facility, transfer station, recycling center, and composting facility. CWRS' extensive and comprehensive recycling activities include a curbside program; collection service at churches, businesses, and schools; buy-back centers; and public education.

The curbside program provides three color-coded recycling pails for newspaper, aluminum, **PET** plastics, tin cans, and glass. Drop-off boxes are used to collect newspaper, cardboard, glass, and aluminum from churches, businesses, **various** nonprofit organizations, and commercial industries.

CWRS operates two California-certified redemption centers which accept newspaper, cardboard, aluminum cans, HDPE and PET plastic, glass, high-grade ledger paper, and computer paper.

CWRS also has public awareness/public education programs related to its office paper, community accounts, and Lodi Unified School District recycling programs.

The office paper program sponsored by CWRS requires participating businesses to designate a "recycling coordinator" to oversee and encourage other employees to participate in the plan.

The community accounts program established by CWRS is designed for schools, clubs, and other nonprofit organizations. CWRS will credit participants for their recyclables. The participants can also take the materials to one of the CWRS buy-back centers to credit their community account.

The Lodi Unified School District and other local schools work with CWRS and the City. This program involves lessons about the importance of recycling and preservation of natural resources for kindergarten through eighth graders. A student assembly for elementary students is also held to demonstrate how recycling works. The schools use the funds raised from their sites' collection of newspapers and aluminum cans for extracurricular activities.

CWRS also contributes a portion of the funds generated from the sale of recyclable materials from its curbside program directly to Lodi schools for public education special events and classroom needs.

Goals for the Lodi SRRE

Definition of Goals and Objectives

The primary goal of the Lodi SRRE is to meet the state-mandated waste diversion goals of 25 and 50 percent by 1995 and 2000, respectively, or as they may be revised by subsequent legislation.

Goals are stated in general terms and are not quantified by target dates, waste types, or volumes. Goals are general statements of policy and will be used to guide the overall direction of the solid waste management program within Lodi.

Objectives are more specific and serve to target certain aspects of the overall goals. Objectives are based in part on local considerations necessary to achieve state-mandated diversion rates. Generally, objectives are stated in measurable and quantifiable terms and are thus presented in their respective components

Integrated Waste Management Goals for Lodi

Overall Program **Goals**

1. Structure waste management practices within the City to promote increased source reduction, recycling, and composting to meet or exceed the following waste diversion objectives: 25 percent by January 1, 1995, and 50 percent by January 1, 2000.
2. Support and encourage regional solutions appropriate to waste management problems, where possible and practical.
3. Maximize recycling opportunities within the City.
4. Support and encourage public education and information programs which lead to a better understanding of solid waste management issues and which foster increased participation in City and regional programs by local citizens, businesses, service groups, schools, and other interested parties.
5. Encourage and foster the participation of the private solid waste refuse collectors, recyclers, citizen action groups, schools, and other interested parties, such as the Lodi Chamber of Commerce, the Woman's Club of Lodi, League of Women Voters, and the Sierra Club, in the integrated solid waste management planning process and the implementation of necessary programs.
6. Provide for sufficient landfill capacity for **those** wastes generated within the City that cannot be diverted.
7. Develop local markets, wherever feasible and possible, for the wastestream components comprising the City's landfill diversion targets. Encourage the establishment of waste diversion programs which are responsive to the needs and desires of the City's business community, consistent with public policies established by the City Council.

Short-term **Goals**

Source Reduction **Goals**

1. Encourage public participation in source reduction by educating the public about the consequences of their

decisions with respect to the initial use, reuse, and ultimate disposal of products they may purchase.

2. Encourage source reduction practices in all aspects of City operations.
3. Minimize the quantity of solid waste generated.

Recycling Goals

1. Maximize opportunities for City residents to recycle.
2. Foster a positive environment by creating local markets for recyclable materials wherever possible and practical to do so.

Composting Goals

1. Compost all yard wastes generated within the City of Lodi.
2. Promote a community-based yard waste collection and processing program.
3. Promote centralized local composting of yard wastes generated in Lodi.

Special Wastes Goals

1. Provide opportunities for recycling special wastes generated within the City such as sewage sludge, ash, tires, white goods, abandoned vehicles, dead animals, and asbestos.

Public Information and Education Goals

1. Encourage public information and education programs in the community in order to heighten the public's awareness of solid waste management issues.
2. Involve private solid waste refuse collectors, recyclers, citizen action groups, and other interested parties in the integrated solid waste management planning process and the implementation of necessary programs.
3. Support and encourage interjurisdictional cooperation in integrated waste management planning and implementation.

4. Promote and support public/private partnerships which work to achieve integrated solid waste management in Lodi. Goals for the medium term are related to reviewing each program for effectiveness and revising or modifying the programs as needed to meet the diversion goals.

Disposal Capacity Goals

1. Develop and maintain sufficient disposal capacity for the City of Lodi's disposal needs.

Funding Goals

1. Provide funding adequate to implement all the program objectives outlined in the **SRRE**.

Integration Goals

1. Integrate all programs to achieve state-mandated diversion goals.

Medium-term Goals

1. Review each program for effectiveness measured by meeting time lines, diversion goals, and monies to implement. Reviews shall be completed by 1995.
2. Continue effective programs to reach the 50 percent level of source reduction and recycling rates. Decisions to continue programs shall be completed by 1995.
3. Revise the programs which are not effective to help the City reach its goals. Revisions shall be completed by 1996.
4. Add any additional programs deemed necessary to meet the remaining diversion goals by 2000. Program additions shall be implemented no later than June 1996.

PROJECT LOCATION

The regional location of the City of Lodi is shown on Figure 2. Lodi is located approximately 34 miles south of Sacramento, 13 miles north of Stockton, and 90 miles east of San Francisco. State Highway 99 runs in a north-south direction through the eastern portion of the City. Interstate Route 5 is 7 miles west of the City and also runs in a north-south direction. The plans and programs outlined in the SRRE are confined to within the Lodi city limits.

Environmental Setting

Lodi was incorporated in 1906. Over the last 10 years, the City has grown from a town of approximately 35,000 to an urban area of close to 52,000 residents. The 1990 census officially puts Lodi's population at 51,874 residents. Lodi is San Joaquin County's second largest city, with Stockton being the largest. Lodi's population is approximately 11 percent of the total population of San Joaquin County.

The City is surrounded by vineyards. These vineyards are primarily Zinfandel and Flame Tokay grapes. References to these grapes can be found throughout the City. The Lodi Grape Festival is an 80-year-old tradition created to celebrate the fall harvest. The festival is a nationally recognized event which attracts visitors from all over the region. Agriculture is a major contributor to Lodi's economy, as well as providing valuable open space around the community.

The City of Lodi has a strong sense of community with its well-maintained tree-lined streets in the residential areas and attractive buildings and historical structures in the downtown area. Lodi Lake Park and Nature Area and numerous other parks are a valuable asset to this small town community.

Lodi's city limits are generally defined by the Mokelumne River on the north, the Central California Traction Company railroad tracks on the east, Harney Lane on the south, and the Woodbridge Irrigation District canal on the west. The City contains 5,091 acres. Residential land represents 47 percent of the incorporated area; commercial property represents 8 percent; industrial property represents 11 percent; 22 percent is dedi-

cated to public and quasi-public uses, including parks; 4 percent is agricultural; and 8 percent is vacant land (*City of Lodi Draft General Plan. Draft Environmental Impact Report*, Jones and Stokes Associates, Inc., April 1990).

According to the City's Draft General Plan. Lodi's housing mix changed substantially in the 1980s with a dramatic increase in the number of multi-family dwelling units.

City solid waste is currently hauled after processing to the North County Sanitary Landfill and Recycling Center. Previously, wastes were hauled to the Harney Lane Landfill which closed in September 1991. Processing takes place at the CWRs Transfer Station/Materials Recovery Facility and Recycling Center at 1333 East Turner Road in Lodi. AB 939 defines a transfer station as those facilities utilized to receive solid wastes, temporarily store, separate, **convert**, or otherwise process the materials in the solid wastes, or to transfer the solid wastes directly from smaller or larger vehicles for transport, and those facilities utilized for transformation. The facility also has a materials recovery facility. AB 939 regulations define a materials recovery facility as a permitted solid waste facility where solid wastes or recyclable materials are sorted or separated, by hand or by use of machinery. for the purposes of recycling or composting. CWRs separates out the recyclables such as cardboard, newspaper, PET, HDPE, polystyrene plastics, aluminum, tin. office and computer paper, glass (clear, green, and brown), and wood. Wood is sold to local waste-to-energy facilities. Sorted construction and demolition waste is sold to gravel companies for reuse. The other recyclables are baled and transported to local brokers for sale. There is also a recycling center and composting facility on site.

According to information contained in the *City of Lodi Draft General Plan. Draft Environmental Impact Report*, Jones and Stokes Associates, Inc.. April 1990, Lodi has 2,406 acres of residential land, representing 47 percent of the incorporated area; 357 acres of **commercial** (7 percent); 65 acres of offices (1 percent); 554 acres of industrial (11 percent); 1,126 acres of public/quasi-public and park lands (22 percent); 200 acres of agricultural lands (4 percent); and 382 acres of vacant land (8 percent). The draft environmental impact report goes on to state that the 200 acres of agricultural land use is intermingled with industrial uses near the north-eastern corner of the City. NO land is designated as agricultural on either City zoning or general plan land use maps.

ENVIRONMENTAL CHECKLIST FORM

An environmental impact report (EIR) was completed in May 1991 for **CWRS'** transfer station/materials recovery facility and recycling center expansion (California State Clearinghouse #90020924). That project is now in the permitting and design phase. Therefore, this initial study will not address the impacts that would be associated with that facility, although it is a focal point of the City's SRRE and the implementation of the programs in the SRRE depend upon the construction of the CWRS facility. Most, if not all, of the impacts which could have resulted from implementing programs in the City's SRRE were anticipated and addressed in that EIR.

I. Background

A. Name of Proponent: City of Lodi

B. Address and Phone Number of Proponent:

221 West Pine Street
Lodi, California 95241-1910
(209) 333-6700

C. Date of Checklist Submittal:

D. Agency Requiring Checklist: City of Lodi
Community Development Department

E. Name of Proposal, if Applicable: Lodi Source Reduction and Recycling
Element

II. Environmental Impacts

(Explanations of all "yes" and "maybe" answers follow)

| A | Earth. Will the proposal result in | <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|----|--|------------|--------------|-------------------------------------|
| 1. | unstable earth conditions or changes in geologic substructures? | | | <input checked="" type="checkbox"/> |
| 2. | disruptions, displacements compaction, or overcovering of the soil? | | | <input checked="" type="checkbox"/> |
| 3. | change in topography or ground surface relief failures? | | | <input checked="" type="checkbox"/> |
| 4. | destruction, covering, or modifications of any unique geologic or physical features? | | | <input checked="" type="checkbox"/> |
| 5. | an increase in wind or water erosion of soils, either on or off the site? | | | <input checked="" type="checkbox"/> |
| 6. | changes in deposition or erosion of beach sands, or changes in siltation, deposition, or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet, or lake? | | | <input checked="" type="checkbox"/> |
| 7. | exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides , ground failure, or similar hazards? | | | <input checked="" type="checkbox"/> |
| B. | Air. Will the proposal result in | | | |
| 1. | substantial air emissions or deterioration of ambient air quality? | | | <input checked="" type="checkbox"/> |

There are no ambient air quality monitoring stations in the City. Generally, there has been little **overall** change in the last 6 years (Jones and Stokes Associates, Inc., 1990). The air pollutants of greatest concern are ozone and carbon monoxide, which are associated with vehicle traffic. Traffic congestion is generally not considered a problem in Lodi. In addition, vehicle inspection

programs in place in San Joaquin County are designed to further reduce vehicle emissions. CWRS presently operates a combination of 18 manual and semiautomated trucks. With the three-cart system for collection of yard wastes, commingled recyclables, and refuse, CWRS will also purchase 13 additional semiautomated Collection trucks. The present collection system uses a combination of semiautomated and manual collection vehicles. Conversion to a completely semiautomated system will result in fewer vehicles servicing the same number of homes. Air quality impacts were examined in the EIR for CWRS' expanded facility. Three scenarios were examined. (1) the existing condition, (2) the proposed expansion of the transfer station handling five times the current wastestream, and (3) no expansion of the transfer station but still achieving AB 939's-mandated diversion rates of 25 and 50 percent. Under the third scenario, recycling was assumed to occur at the proposal sites. While there were increases in air emissions over the existing conditions, the second scenario of expanding the transfer station to handle the proposed waste volumes showed a slight advantage in terms of air quality. Mitigation measures to help reduce air quality impacts were proposed in the EIR and are outlined below.

- a. continuous maintenance of vehicles to assure emissions are kept within required tolerances
- b. continuous upgrading of the service fleet by the owner with the goal to ensure that newer equipment with lower emissions makes up a substantial part of the service fleet
- c. enclosing, to the greatest extent possible, the tipping floor and other areas where materials are handled
- d. use of electric-powered rather than gasoline- or diesel-powered stationary equipment
- e. pave the entire area of operations
- f. obtain Air Pollution Control District (APCD) authority to construct and permits to operate for all new stationary equipment
- g. comply with fugitive dust control measures of the APCD during and after construction

| | | | | |
|---|---|------------|--------------|-----------|
| B | Air. (continued) Will the proposal result in | <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|---|---|------------|--------------|-----------|

| | | | | |
|---|--------------------------------------|--|--|---|
| 2 | the creation of objectionable odors? | | | X |
|---|--------------------------------------|--|--|---|

Impacts associated with the CWRS materials recovery facility were discussed in the EIR relating to its expansion. Odors are emitted from yard wastes and refuse. However, since each of the collection containers is covered with an attached lid, the potential for objectionable odors is minimized.

| | | | | |
|----|---|--|--|---|
| 3. | alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally? | | | X |
|----|---|--|--|---|

C. **Water.** Will the proposal result in

| | | | | |
|----|---|--|--|---|
| 1. | changes in currents, or the course or direction of water movements, in either marine or fresh waters? | | | X |
|----|---|--|--|---|

| | | | | |
|----|---|--|--|---|
| 2. | changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? | | | X |
|----|---|--|--|---|

| | | | | |
|----|--|--|--|---|
| 3. | alterations to the course or flow of flood waters? | | | X |
|----|--|--|--|---|

| | | | | |
|----|--|--|--|---|
| 4. | change in the amount of surface water in any water body? | | | X |
|----|--|--|--|---|

| | | | | |
|----|--|--|--|---|
| 5. | discharge into surface water or in any alteration of surface-water quality including, but not limited to, temperature, dissolved oxygen, or turbidity? | | | X |
|----|--|--|--|---|

| | | | | |
|----|--|--|--|---|
| 6. | alteration of the direction or rate of flow of ground water? | | | X |
|----|--|--|--|---|

C Water. (continued)
Will the proposal result in

| <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|------------|--------------|-----------|
| | | X |

- 7 change in the quantity of ground water, either through direct additions or withdrawals, or through interception of an aquifer. by cuts or excavations?

- 8 substantial reduction in the amount of water otherwise available for public water supplies?

X

9. exposure of people or property to water-related hazards such as flooding or tidal waves?

X

The Mokelumne River and Lodi Lake are the two principal water features in Lodi. Most of the City is located within the 500-year floodplain according to the draft EIR for the general plan (Jones and Stokes Associates. Inc., 1990). It is well protected from the 100-year flood by the levee system along the Mokelumne River. The additional curbside collection of recyclables, public involvement programs, and commercial recycling programs such as office paper programs will not have an impact on water resources. Impacts resulting from expansion of CWRS' operations have been addressed in the EIR for that project (EBA Wastetechnologies. 1991).

D. Plant life. Will the proposal result in

~~Yes~~ Maybe No

1. change in the diversity of species or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?

X

2. reduction of the numbers of any unique, rare, or endangered species of plants?

X

3. introduction of new species of plants into an area, or result in a barrier to the normal replenishment of existing species?

X

D Plant life. (continued) Yes Maybe No
Will the proposal result in

- 4 reduction in acreage of any non-cultural crop? **X**

The programs which are described in the SRRE would not adversely impact the biological diversity of the area. In fact, by providing additional avenues for people to get rid of their unwanted materials through increased recycling and reuse programs, habitat may even be improved somewhat by reducing litter and illegal dumping. The SRRE does not require or condition the conversion of undeveloped areas to urban uses.

E. Animal life. Will the proposal result in Yes Maybe No

1. change in the diversity of species or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic Organisms, or insects)? **X**
2. reduction of the numbers of any unique, rare, or endangered species of animals? **X**
3. introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals? **X**
4. deterioration of existing fish or wild-life habitat? **X**

F. Noise. Will the proposal result in

1. increase in existing noise levels? **X**
2. exposure of people to severe noise levels? **X**

F Noise. (Continued)

Will the proposal result in

Traffic noise is the most dominant source of noise within the City of Lodi. With more recycling collection trucks traveling city streets, there could be an increase in ambient noise levels, particularly in residential neighborhoods bordering Turner Road, Harney Lane, and Kettleman Lane. However, it is likely that the increase in traffic noise levels would occur gradually and would not be serious. Also, absent specific details on residential and commercial collection rates, site-specific impacts are difficult to assess. However, noise impacts were assessed at CWR's Turner Road facility for the EIR on the proposed expansion. That evaluation did account for the level of truck traffic that would result from expanded residential, commercial, and industrial recycling programs such as are envisioned in the City's SRRE. Assuming that all mitigation measures identified in the EIR are implemented, noise impacts from implementing the programs in this SRRE are expected to be insignificant. Mitigation measures identified in the EIR are outlined below.

- a. Construct a 12-foot-high noise berm or barrier with no openings between the parking-storage area and mobile home park. This plus other mitigations listed herein will reduce project-induced noise levels below 60 decibels "A" weighted (dBA) average day-night level (L_{dn}).
- b. Change, through attrition, the refuse truck fleet to models that have underbody exhausts and produce not more than 71 to 73 dBA at 50 feet while traveling at 25 miles per hour (i.e., medium truck levels). A 5 to 6 dBA reduction in truck noise would make future roadway noise levels the same as the no-project level (see Table N-4).
- c. Use of rib tread tires on the transfer and refuse truck fleet is recommended (see discussion in Appendix E from City Noise Element about truck mitigations).
- e. Advise truck drivers to accelerate slowly when westbound or eastbound at the Turner/Beckman intersection.
- f. Trucks that leave between 6:00 a.m. and 7:00 a.m. should be parked furthest from the mobile home park (i.e., in parking lot 2 of the east portion of lot 1).
- g. All movement of storage adjacent to the mobile home park to take place during the day (7:00 a.m. to 7:00 p.m.)

F **Noise.** (Continued)

Will the proposal result in

Yes

Maybe

~~No~~

- h. Construct a 10-foot-high noise wall or berm surrounding the west and southwest side of the oil and metal recovery area.
- i. Construct a 12-foot-high noise wall along the east property line from Turner Road north to the shop building.
- j. Monitor off-site noise effects and take remedial action, as needed, to bring off-site impacts into compliance to the extent they are attributable to the transfer station.

G. **Light and glare.** Will the proposal result in new light or glare?

X

H. **Land use.** Will the proposal result in a substantial alteration of the present or planned land use of an area?

X

I. **Natural resources.** Will the proposal result in an increase in the rate of use of any natural resources?

X

One of the purposes of Assembly Bill 939 and the City of Lodi's SRRE is to conserve natural resources through source reduction, reuse of materials, recycling, and composting. The City is mandated to divert 25 percent of its waste by 1995 and 50 percent by 2000.

J. **Risk of upset.** Will the proposal involve

Yes

Maybe

No

- 1. a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?
- 2. possible interference with an emergency response plan or an emergency evacuation plan?

X

X

J Risk of upset. (Continued)

Will the proposal involve

Yes

Maybe

No

The project does not involve the use of unregulated hazardous substances. However, incidental amounts of household hazardous waste, (cleaning supplies, solvent, pesticides) are inadvertently disposed of by householders along with their normal household refuse. Hazardous waste screening programs are required by the California Regional Water Quality Control Board(s) and the California Integrated Waste Management Board. The hazardous waste screening program used by the City's franchise refuse hauler, CWRs, is contained in Appendix C of the EIR for CWRs' expanded facility.

- | | | |
|---|--|---|
| K | Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area? | X |
| L | Housing. Will the proposal affect existing housing or create a demand for additional housing? | X |
| M | Transportation/circulation. Will the proposal result in | |
| | 1. generation of substantial additional vehicular movements? | X |
| | 2. effects on existing parking facilities, or demand for new parking? | X |
| | 3. substantial impact upon existing transportation systems? | X |
| | 4. alterations to present patterns of circulation or movement of people and/or goods? | X |
| | 5. alterations to waterborne, rail, or air traffic? | X |
| | 6. increases in traffic hazards to motor vehicles, bicyclists, or pedestrians? | X |

The generation of additional vehicular movement and traffic hazards was addressed in the EIR for the expansion of CWRS' facility. The EIR indicates that there will be minor adverse impacts in the immediate vicinity of the transfer station. Cumulative impacts are brought about by projected growth in the industrial area.

N **Public services.** Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:

| | | | |
|--|------------|--------------|-----------|
| | <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|--|------------|--------------|-----------|

- | | | |
|---|--|---|
| 1. fire protection? | | X |
| 2. police protection? | | X |
| 3. schools? | | X |
| 4. parks or other recreational facilities? | | X |
| 5. maintenance of public facilities, including roads? | | X |
| 6. other governmental services? | | X |

With the proposed three-cart refuse and recyclable collection service, there will be less potential for litter on City streets than at present. With three separate waste Carts, there will be **less** of a problem with overflowing containers. In addition, each waste cart has an attached lid to prevent blowing refuse.

O. **Energy.** Will the proposal result in

| | | | |
|--|------------|--------------|-----------|
| | <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|--|------------|--------------|-----------|

- | | | |
|---|--|---|
| 1. use of substantial amounts of fuel or energy? | | X |
| 2. substantial increase in demand upon existing sources of energy, or require the development of new sources of energy? | | X |

P Utilities. Will the **proposal** result in a need for new systems, or substantial alterations to the following facilities:

| | <u>Yes</u> | <u>Maybe</u> | No |
|--|------------|--------------|----|
|--|------------|--------------|----|

- | | | | |
|-------------------------------------|--|--|---|
| 1. electrical power or natural gas? | | | X |
| 2. communications system? | | | X |
| 3. water? | | | X |
| 4. sewer or septic tanks? | | | X |
| 5. storm-water drainage? | | | X |
| 6. solid waste and disposal? | | | X |

The City's franchise refuse hauler, CWRs, has anticipated that AB 939 and the mandate to divert 25 and 50 percent of the wastestream in 1995 and 2000, respectively, would have an impact on the existing transfer station, resource recovery, and recycling center operations. Accordingly, CWRs has proceeded with plans to expand its facility in anticipation of increased diversion programs. An EIR has been prepared consistent with requirements of the California Environmental Quality Act. CWRs is proceeding with obtaining state and local permits for the expanded facility.

Q. **Human** health. Will the proposal result in

| | <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|--|------------|--------------|-----------|
|--|------------|--------------|-----------|

- | | | | |
|--|--|--|---|
| 1. creation of any health hazard or potential health hazard (excluding mental health)? | | | X |
| 2. exposure of people to potential health hazards? | | | X |

R. Aesthetics. Will the proposal result in the destruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?

| | | | |
|--|--|--|---|
| | | | X |
|--|--|--|---|

S Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?

x

T Cultural resources.

1 Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?

x

2. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historical building, structure, or object?

x

3. Does the proposal have the potential to cause a physical change which would affect unique cultural values?

x

4. Will the proposal restrict existing religious or sacred uses within the potential impact area?

x

U. **Mandatory findings of significance.**

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major period of California history or prehistory?

x

| U | Mandatory findings of significance. (Continued) | _Yes_ | _Maybe_ | _No_ |
|----|---|-------|---------|------|
| 2 | Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.) | | | X |
| 3. | Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact two or more separate resources where the impact on each resource is relatively small. but where the effect on the environment is significant.) | | | X |
| 4. | Does the project have environmental effects which will cause substantial adverse effects on human beings. either directly or indirectly? | | | X |

II. Discussion of Environmental Evaluation

Explanations of all "yes" and "maybe" answers are required. Please attach separate sheet(s) with discussion, if necessary.

See attached sheets.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface. The top edge of the paper is slightly irregular, like a torn piece of paper.

Date _____

Signature and Title

For

IV. Determination

On the basis of this initial evaluation

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

1-7-92
Date

David M. McIntosh, President
Signature and Title

For

REFERENCES

California Waste Removal Systems. *Integrated Waste Reduction and Recycling Plan for the City of Lodi.* **February 1991.**

EBA Wastechнологies. *89-182-2 Draft Environmental Impact Report for California Waste Removal Systems, Inc. Transfer Station/Materials Recovery Facility and Recycling Center Expansion.* SCH #90020924. **February 1991.**

EBA Wastechнологies. *89-182-2 Responses to Comments on Final Environmental Impact Report. California Waste Removal Systems, Inc. Transfer Station/Materials Recovery Facility and Recycling Center Expansion.* SCH #90020924. **May 1991.**

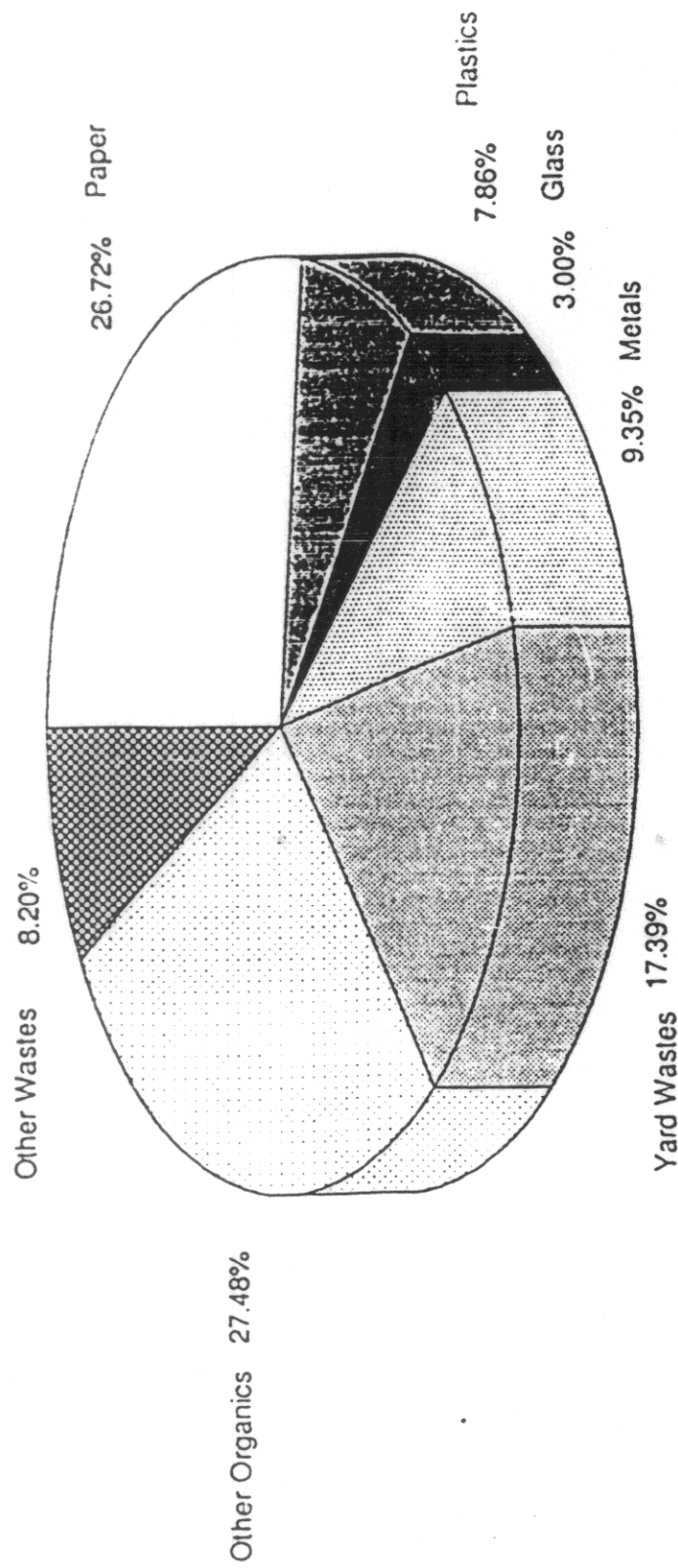
EBA Wastechнологies. *Initial Study Environmental Impacts for California Waste Removal Systems, Inc. Transfer Station/Resource Recovery Facility and Recycling Center Expansion.* **July 1990.**

EMCON Associates. *City of Lodi Source Reduction and Recycling Element, Preliminary Draft Report.* **September 1991.**

Jones & Stokes Associates, Inc. *City of Lodi Draft General Plan, Environmental Impact Report.* **April 1990.**

Figure 1

Waste Composition City of Lodi 1990



Expressed as a percentage of wastes disposed in 1990

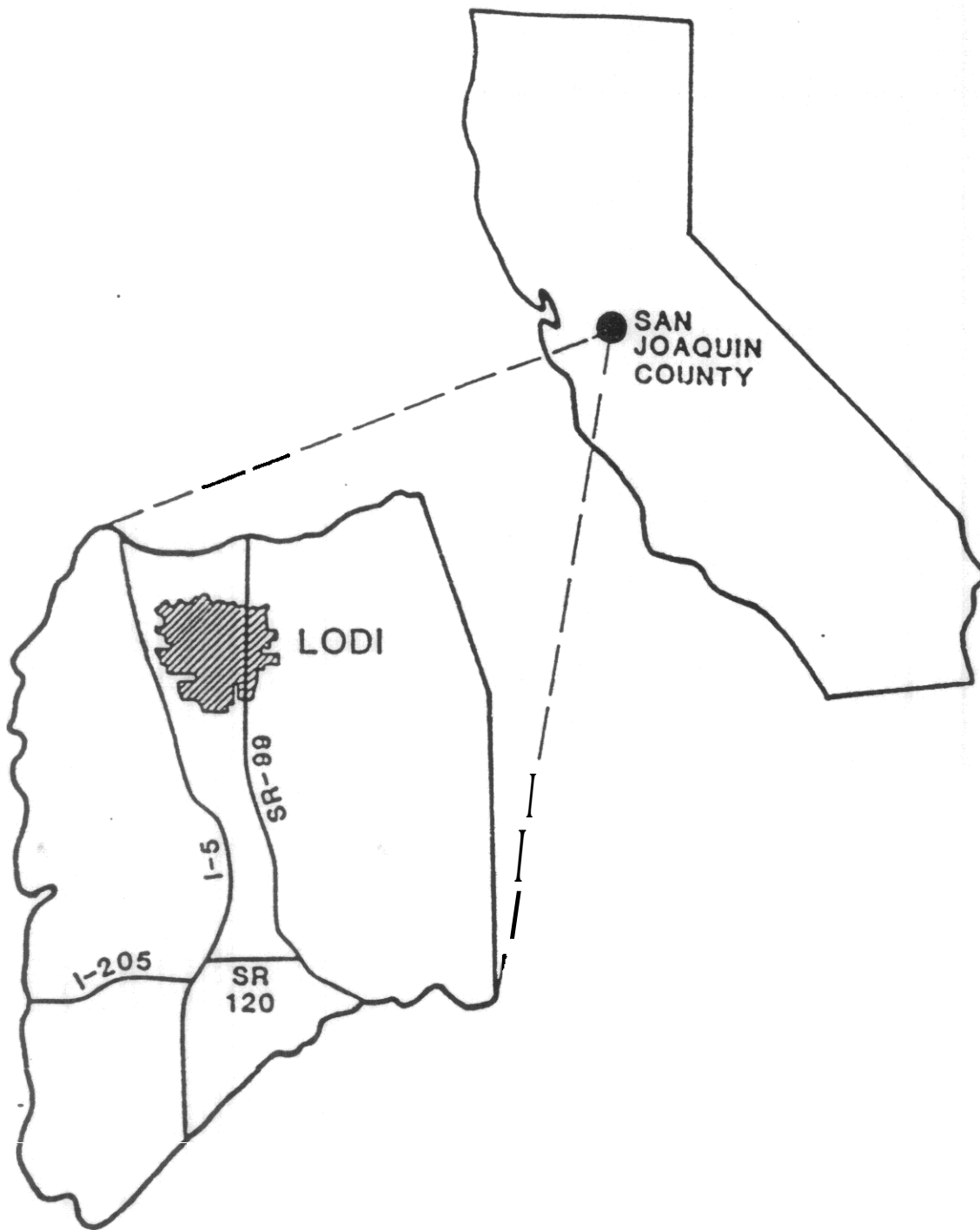
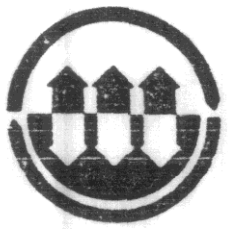


FIGURE 2 REGIONAL SETTING



EMCON
ASSOCIATES

Consultants in Wastes
Management and
Environmental Control

December 23, 1991
Project F64-01.01

Mr Kirk Evans
Administrative Assistant to the City Manager
City of Lodi
221 West Pine Street
P O Box 3006
Lodi, California 95241-1910

Re: Source Reduction and Recycling Element for the City of Lodi - Final Draft Report

Dear Mr. Evans:

EMCON Associates (EMCON) is pleased to provide you with the source reduction and recycling element final draft copy for the City of Lodi (City). We have incorporated the comments of the countywide local task force and the city's solid waste management (SWAM) task force into the document. A copy of the California Environmental Quality Act initial study is also included for submittal to the City Community Development Department.

EMCON wants to take the opportunity to thank both you, the SWAM force, and California Waste Removal Systems for all of your hard work and dedication without which this document would not be possible.

If you have any questions, please call

Very truly yours.

EMCON Associates

Cheryl L. Shields
Project Manager

CLS:ldr

PJF\F64\F640101Q

Lodi Source Reduction and Recycling Element

Final Draft Report

Prepared for

City of Lodi

December 1991

Prepared by

**EMCON Associates
1433 North Market Boulevard
Sacramento, California 95834**

Project F64-01.01

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LODI SOLID WASTE MANAGEMENT TASK FORCE

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Theo Vandenberg

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Kevin Van Steenberge

Dave Vaccarezza

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GLOSSARY OF TERMS

| | |
|------------------------------------|--|
| AB | Assembly Bill |
| Aerobic | The utilization of organic wastes as a substrate for the growth of bacteria which function in the <u>presence</u> of oxygen to reduce the volume of waste. |
| Aluminum Can or Aluminum Container | Any food or beverage container that is composed of at least 94 percent aluminum. |
| Anaerobic | The utilization of organic wastes as a substrate for the growth of bacteria which function in the <u>absence</u> of oxygen to reduce the volume of waste. |
| ASTM | American Society for Testing and Materials |
| Bimetal Container | Any metal container composed of at least two different types of metal such as a steel container with an aluminum top. |
| Buy-back Recycling Center | A facility which pays a fee for the delivery and transfer of ownership to the facility of source-separated materials, for the purpose of recycling or composting. |
| Capital Costs | Those direct costs incurred in order to acquire real property assets such as land, buildings, and building additions; site improvements; machinery; and equipment. |
| CEQA | California Environmental Quality Act |
| CFC | Chlorofluorocarbons |
| City | City of Lodi |
| CIWMB | California Integrated Waste Management Board (formerly the California Waste Management Board) |

GLOSSARY OF TERMS

(Continued)

| | |
|-------------------------------|---|
| Commercial Waste | Waste generated in businesses, such as offices, stores, markets, etc. |
| Cornposting | A controlled microbial degradation of organic wastes yielding a humus-like product of potential value as a soil conditioner. |
| Corrugated Container | A paperboard container fabricated from two layers of kraft linerboard sandwiched around a corrugating medium. Kraft linerboard means paperboard made from wood pulp produced by a modified sulfate pulping process, with basic weight ranging from 18 to 200 pounds, manufactured for use as facing material for corrugated or solid fiber containers. Linerboard also may mean that material which is made from reclaimed paper stock. Corrugating medium means paperboard made from chemical or semichemical wood pulps, straw, or reclaimed paper stock, and folded to form permanent corrugations. |
| Construction Waste | Waste materials produced in the construction of homes, office buildings, etc. |
| Curbside Recycling Collection | The separation of residential wastes into categories at its point of origin or commingled recyclable materials for the purpose of recycling pickup at the street curb. |
| CoSWMP | County solid waste management plan |
| Disposal | The management of solid wastes through land-filling or transformation at permitted solid waste facilities. |
| Disposal Capacity | The capacity expressed in either weight in tons or its volumetric equivalent in cubic yards, which is either currently available at a permitted solid waste landfill, or will be needed for the disposal of solid waste generated within the jurisdiction over a specified period of time. |
| Disposal Site | General term used for a transfer station or sanitary landfill where waste is disposed. |

GLOSSARY OF TERMS (Continued)

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|---------------------------|--|
| Diversion | Any activity which prevents waste from being disposed of in a landfill. |
| Diversion Alternative | Any activity existing or occurring in the future, which has been, is, or will be implemented by a jurisdiction which can result in or promote the diversion of solid waste , resource reduction, recycling, or composting from solid waste landfills and transformation facilities. |
| Drop-off Recycling Center | A facility which accepts delivery or transfer of ownership of source-separated materials for the purpose of recycling or composting, without paying a fee. Donation of materials to collection organizations, such as charitable groups, is included in this definition. |
| Durability | The ability of a product to be used for its intended purpose for a period greater than the mean usable product life span of similar products. |
| EIR | Environmental impact report |
| End Market or End Use | The use or uses of a diverted material or product which has been returned to the economic mainstream, whether or not this return is through a sale of the material or product. The material or product can have a value which is less than the solid waste disposal cost. |
| EPS | Expanded polystyrene foam |
| Ferrous Metals | Any iron or steel scrap which has an iron content sufficient for magnetic separation, |
| Food Waste | All animal and vegetable solid wastes generated by food facilities, as defined in California Health and Safety Code, Section 27521, or from residences, that results from the storage, preparation, cooking, or handling of food. |
| HDPE | High density polyethylene, plastic container code no. 2 |
| HHW | Household hazardous waste |

GLOSSARY OF TERMS (Continued)

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| HHWE | Household hazardous waste element |
| HHWF | Household hazardous waste facility |
| Household Hazardous Waste | Those wastes resulting from products purchased by the general public for household use which, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial known or potential hazard to human health or the environment when not properly treated, disposed, or otherwise managed. |
| Industrial Waste | All types of solid wastes from industrial processing and manufacturing operations, including construction and demolition wastes. |
| Inert Solids or Inert Waste | Nonliquid solid waste including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water quality objectives established by a Regional Water Quality Control Board pursuant to Division 7, commencing with Section 13000 of the California Water Code and does not contain significant quantities of decomposable solid waste. |
| IWMP | Integrated waste management plan |
| Landfill | A disposal site employing an engineered method of disposing solid wastes on land in a manner that minimizes environmental hazards by spreading solid wastes in layers, compacting the waste to the smallest practical volume, and applying cover materials at the end of each operating day. |
| LDPE | Low density polyethylene, plastic container code no. 4 |
| LEA | Local enforcement agency |
| MRF | Material recovery facility |

GLOSSARY OF TERMS (Continued)

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| Marine Wastes | Solid waste generated from marine vessels and ocean work platforms, solid waste washed on to ocean beaches, and litter discarded on ocean Seaches. |
| Market Development | A method of increasing the demand for recovered materials so that end markets for the materials are established, improved, or stabilized and thereby become more reliable. |
| Materials Recovery | A process whereby secondary used materials, such as glass, plastics, aluminum, and newspaper, are removed from municipal solid wastes. |
| Materials Recovery Facility | A permitted solid waste facility where solid wastes or recyclable materials are sorted or separated, by hand or by use of machinery, for the purposes of recycling or composting. |
| Medium-term Planning Period | The period beginning in January 1, 1995, and ending December 31, 1999. |
| Mixed Paper | A waste type which is a mixture, unsegregated by color or quality, of at least two of the following paper wastes: newspaper, corrugated cardboard, office paper, computer paper, white paper, coated paper stock, or other paper wastes. |
| Municipal Solid Wastes | All solid waste generated by residential, commercial, and industrial sources, and all solid waste generated at construction and demolition sites, at food processing facilities, and at treatment works for water and wastewater, which are collected and transported under the authorization of a jurisdiction or are self-hauled. Municipal solid waste does not include agricultural crop residues, animal manures, mining wastes and fuel extraction wastes, forestry wastes, and ash from industrial boilers, furnaces, and incinerators. |

GLOSSARY OF TERMS (Continued)

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|---------------------|--|
| Nonferrous Metals | Any metal scraps that have value, and that are derived from metals other than iron and its alloys in steel, such as aluminum, copper, brass, bronze, lead, zinc, and other metals, and to which a magnet will not adhere. |
| Nonrecyclable Paper | Discarded paper which has no market value because of its physical or chemical or biological characteristics or properties. |
| OCC | Old corrugated containers |
| Old Newspaper | Any newsprint which is separated from other types of solid waste or collected separately from other types of solid wastes and made available for reuse and which may be used as a raw material in the manufacture of a new paper product. |
| OMG | Old magazines |
| ONP | Old newspaper |
| Operational Costs | Those direct costs incurred in maintaining the ongoing operation of a program or facility. Operational costs do not include capital costs. |
| Organic Wastes | Solid wastes originated from living organisms and their metabolic waste products, and from petroleum, which contain naturally produced organic compounds, and which are biologically decomposable by microbial and fungal action into the constituent compounds of water, carbon dioxide, and other simpler organic compounds. |
| Other Plastics | All waste plastics except polyethylene terephthalate containers, film plastics, and high density polyethylene containers. |
| PCB | Polychlorinated biphenyls |

GLOSSARY OF TERMS

{Continued}

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| Permitted Capacity | That volume in cubic yards or weight in tons which a solid waste facility is allowed to receive, on a periodic basis, under the terms and conditions of that solid waste facility's current solid waste facilities permit issued by the California Integrated Waste Management Board. |
| Permitted Landfill | A solid waste landfill for which there exists a current solid waste facilities permit issued by the California Integrated Waste Management Board or which is permitted under the regulatory scheme of another state agency. |
| permitted Solid Waste Facility | A solid waste facility for which there exists a solid waste facilities permit issued by the California Integrated Waste Management Board or which is permitted under the regulatory scheme of another state agency. This definition does not apply to cogeneration or biomass plants which may be permitted by the California Energy Commission or other agencies. |
| PET | Polyethylene terephthalate, plastic container code no. 1 |
| Purchased Preference | A preference provided to a wholesale or retail commodity dealer which is based upon the percentage amount that the costs of products made from recycled materials may exceed that of a similar nonrecycled product and still be deemed the lowest bid. |
| PVC | Polyvinylchloride, plastic container code no. 3 |
| PP | Polypropylene, plastic container code no. 5 |
| PS | Polystyrene, plastic container code no. 6 |
| Rate Structure | That set of prices established by a jurisdiction, special district, or other rate setting authority to compensate the jurisdiction, special district, or rate setting authority for the partial or full costs of the collection, processing, recycling, composting, or transformation or landfill disposal of solid wastes, or both. |

GLOSSARY OF TERMS

(Continued)

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|-------------------------|---|
| Recovered Material | Material which has been retrieved or diverted from disposal or transformation for the purpose of recycling, reuse, or composting. Recovered material does not include those materials generated from and reused on site for manufacturing purposes. |
| Recycling | A process by which materials which would otherwise become waste are collected, separated, or processed, and used in the form of raw materials in replacement of virgin materials or products. |
| Repairability | The ability of a product or package to be restored to a working or usable state at a cost which is less than the replacement cost of the product or package. |
| Residential Solid Waste | Solid waste originating from single-family or multifamily dwellings. |
| Residential Waste | Waste generated by households. |
| Reusability | The ability of a product or package to be used more than once in its same form. |
| Reuse | The use, in the same form as it was produced, of a material which might otherwise be discarded. |
| Rubber | An amorphous polymer of isoprene derived from natural latex of certain tropical plants or from petroleum. |
| Salvage | The controlled removal of solid waste materials at a permitted solid waste facility for recycling, reuse, composting , or transformation. |
| SB | Senate Bill |
| Seasonal | Those periods of time during the calendar year which are identifiable by the distinct cyclical patterns of local climate, demography, trade, or commerce. |

GLOSSARY OF TERMS

(Continued)

| | |
|----------------------------|---|
| Self-haul | The activity whereby a resident or other unlicensed hauler delivers self-generated waste to a drop-off, disposal, or transfer facility. |
| Sewage Sludge | Residual solids and semisolids resulting from the treatment of wastewater, but does not include wastewater effluent discharged from such treatment processes. |
| Short-term Planning Period | A period beginning January 1, 1991 , and ending December 31, 1994 . |
| Sludge | Residual solids and semisolids resulting from the treatment of water, wastewater, and other liquids. Sludge includes sewage sludge and sludge derived from industrial processes, but does not include effluent discharge from such treatment processes. |
| Source Reduction | The design, manufacture, acquisition, and reuse of materials so as to minimize the quantity and/or toxicity of waste produced. Source reduction prevents waste either by redesigning products or by otherwise changing societal patterns of consumption, use, and waste generation. |
| Special Waste | Special waste includes any solid waste which, because of its source of generation, physical, chemical, or biological characteristics or unique disposal practices is specifically conditioned in a solid waste facilities permit for handling or disposal, or both. Any hazardous waste listed in Section 66740 of Title 22 of the California Code of Regulations, or any waste which has been classified as a special waste pursuant to Section 66744 of Title 22 of the California Code of Regulations, or which has been granted a variance for the purpose of storage, transportation, treatment, or disposal by the Department of Health Services pursuant to Section 66310 of Title 22 of the California Code of Regulations. |
| SRRE | Source reduction and recycling element |

GLOSSARY OF TERMS

(Continued)

| | |
|--------------------------|--|
| Source Separation | The segregation of specific materials at the point of generation for separate collection. |
| Tin Can or Tin Container | Any food or beverage container that is composed of steel with a tin coating. |
| Transformation Facility | A facility whose principal function is to convert, combust, or otherwise process solid waste by incineration, pyrolysis, destructive distillation, or gasification, or to chemically or biologically process solid wastes, for the purpose of volume reduction, synthetic fuel production, or energy recovery. A transformation facility does not include a composting facility. |
| Waste | Material which is discarded by the generator as no longer useful to the generator. |
| Waste Categories | The grouping of solid wastes with similar properties into major solid waste classes, such as grouping together office and corrugated newspaper as a paper waste category, as identified by the solid waste classification system contained in Section 18722 of Article 6.1 of Title 14 of the California Code of Regulations, except where a component-specific requirement provides alternative means of classification. |
| Waste Generator | Any person, as defined by Section 40170 of the Public Resources Code, whose act or process produces solid waste as defined in Public Resources Code, Section 40191, or whose act first causes solid waste to become subject to regulation. |
| Waste Reduction | A practice that includes all measures that will (1) keep products in containers out of the wastestream by extending product life and reusing products and containers in their original form, (2) decrease the amount of materials discarded by reducing unnecessary consumption or by using products that lead to less waste, (3) reduce the materials used and discarded in the production process, and (4) actively participate in recycling activities. |

GLOSSARY OF TERMS (Continued)

| | |
|-------------|--|
| Waste Type | Identified waste having the features of a group or class of waste which are distinguishable from any other waste type, as identified by the waste classification system contained in Section 18722 of Article 6.1, Title 14, California Code of Regulations, except where a component-specific requirement provides alternative means of classification. |
| White Goods | Discarded, enamel-coated major appliances, such as washing machines, clothes dryers, hot water heaters, stoves, and refrigerators. |
| Wood Wastes | Solid waste consisting of wood pieces or particles which are generated from the manufacture and production of wood products, harvesting, or processing or storage of raw wood materials, or construction and demolition activities. |
| Yard Wastes | Any waste generated from the maintenance or alteration of public, commercial, or residential landscapes including, but not limited to, yard clippings, tree trimmings, prunings, brush, and weeds. |

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Introduction

As the population in California expands, so does the need for proper solid waste management systems. Waste management in California now faces the toughest laws in the nation. The California Integrated Waste Management Act of 1989 (commonly called Assembly Bill [AB] 939) gives city and county governments specific responsibilities to plan for and to accomplish high levels of diversion of resources from landfill disposal. Traditionally, this had been the responsibility of county governments. By January 1, 1995, cities and counties *must* divert 25 percent of their solid waste from landfills through source reduction, recycling, and composting. By January 1, 2000, a 50 percent diversion rate must be achieved. A diversion rate of 10 percent achieved through transformation can be ~~included~~ as part of the 50 percent diversion rate goal for plans submitted ~~after~~ January 1, 1995.

The purpose of this source reduction and recycling element is to provide the City of Lodi (City) and the San Joaquin County waste management local task force with a current comprehensive update on the status of solid waste management in the City and to outline the City's plan to achieve and exceed the landfill diversion goals mandated by the state of California. This plan recommends that the citizens of Lodi, the City administration, the City's solid waste management task force and the **local** franchise hauler, California Waste Removal Systems (CWRS), play leadership roles in the development of the programs outlined in this document.

Integrated Waste Management Planning

AB 939 established a new hierarchy for management of solid wastes. At the top of the hierarchy is source reduction, the ~~preferred~~ management method which is intended to reduce the amount of ~~wastes~~ which are generated at the source. At the second tier of the hierarchy is recycling and

composting. AB 939 and its implementing regulations stress source separation of recyclables and compostables. The lowest level and least preferred management method is reserved for landfilling and transformation (or incineration). Landfilling is intended to be used only for those materials which cannot otherwise be reduced, reused, or recycled.

The old adage of "out of sight - out of mind" no longer holds true. AB 939 challenges Californians to think about their buying habits and about what they throw away. More and more, the state's citizens and businesses will be separating wastes into its component parts, so that they can be reused rather than cast off as unwanted discards.

The regulations which have been promulgated to implement AB 939 require each SRRE to contain nine specific components - each dealing with a specific aspect of integrated waste management: waste generation, source reduction, recycling, composting, special waste, public education, disposal facility capacity, funding, and integration. The cornerstone is the waste generation component which estimates two things: (1) the composition and quantity of the wastes which are being disposed of and (2) the composition and quantity of wastes which are currently diverted from disposal through source reduction, recycling, and composting. When those two elements are combined, the resulting total is the amount and composition of wastes which are generated within the City of Lodi. The diversion rate, taken as a percent of the wastes which are generated, provides the basis for measuring progress toward the 25 and 50 percent goals established by AB 939. The composition of wastes which are disposed of will help the City determine which materials can be diverted from the wastestream so that plans and programs for their diversion can be developed.

Summary of Waste Generation in Lodi

The City landfilled an estimated 67,231 tons in 1990, diverted an estimated 81,432 tons (of which 45,000 are inert materials), and transformed an estimated 2,507 tons. Total waste generation for the City is 151,170 tons in 1990. Of the quantity of wastes generated, less than 1 percent is source reduced, almost 46 percent is recycled, and approximately 8 percent is composted. A good portion of the diversion rate comes from waste types (scrap metals, food processing wastes, and inert materials), which are the subject of some debate among legislators and special interest groups as to whether or not they should be counted in the diversion

totals, since these are not currently disposed of in large quantities and some believe that they should not count towards diversion. In Lodi's case, if inert materials such as concrete, dirt, and asphalt were not counted, it would reduce the City's diversion rates from almost 54 percent to 19 percent. The City will need to closely monitor pending legislation to assess its impact on the wastestream.

Of the waste types which are disposed, paper represents almost 27 percent; plastics represent almost 8 percent; glass is 3 percent; metals are over 9 percent; yard wastes are over 17 percent; other organics including food, wood, and textiles are over 27 percent; and other wastes (inert materials and household hazardous wastes) are over 8 percent.

The waste disposal study, which was conducted by San Joaquin County, indicated the following waste types should be targeted for recovery beginning in the short-term planning period of 1991-1994.

| Waste Category | Waste Type | Percent Disposed | Targeted for Diversion |
|----------------|---------------|------------------|------------------------|
| Paper | Corrugated | 7.26 | ✓ |
| | Mixed Paper | 8.93 | |
| | Newspaper | 3.19 | ✓ |
| | High-Grade | 0.72 | ✓ |
| | Other Paper | 6.62 | |
| Plastics | HDPE | 0.61 | ✓ |
| | PET | 0.13 | ✓ |
| | Film | 2.79 | ✓ |
| | Other | 4.33 | |
| Glass | Refillable | 0.02 | ✓ |
| | Redemption | 0.65 | ✓ |
| | Recyclable | 1.90 | ✓ |
| | Nonrecyclable | 0.43 | |
| Metals | Aluminum Cans | 0.24 | ✓ |
| | Ferrous | 6.11 | ✓ |
| | Nonferrous | 0.58 | ✓ |
| | White Metals | 0.99 | ✓ |
| | Mixed Metals | 1.43 | ✓ |

| Waste Category | Waste Type | Percent Disposed | Targeted for Diversion |
|----------------|--------------|------------------|------------------------|
| Yard Wastes | | 17.39 | ✓ |
| Other Organics | Food | 10.98 | ✓ |
| | Tires | 1.64 | ✓ |
| | Wood | 8.01 | ✓ |
| | Agricultural | 0.45 | |
| | Manure | 0.11 | |
| | Textiles | 6.29 | |
| Other Wastes | Inert Solids | 7.43 | ✓ |
| | Hazardous | 0.77 | |

Figure 1 summarizes waste disposal composition information for key recyclable components from the county's study for Lodi.

Summary of Selected Programs January 1, 1991 - December 31, 1994

The City is fortunate to have a franchise waste hauler, CWRS, who is at the forefront of integrated solid waste management. The City's existing diversion rate is largely the result of efforts by CWRS. **Less waste** which is hauled to the county for disposal saves Lodi's residents and businesses money, but also, more importantly, conserves **valuable** landfill space. The success of the short-term programs in this SRRE will continue to rely on this public-private partnership between the City and CWRS. Because the success of these programs depends so much upon the efforts of CWRS, the City intends to monitor CWRS' programs and diversion rates very closely by requiring semiannual progress reporting.

In the short-term time frame, the City intends to **convert** Lodi residents over to a **semiautomated/automated** collection system consisting of three wheeled carts, typically with one for refuse, one for **yard waste**, and one for commingled recyclables. The size of the cart, which may be **used** in the short term, is proposed to be flexible to maximize use of the existing cart supplies. Where the **previous curbside** recycling program was voluntary, carts for recyclable and compostable materials will **be** made available to all single-family residents. At the same time that the City converts to the three-cart system, the City will institute a new rate structure where the cost

of second and subsequent refuse containers will cost more than the first container. This is an inverted or inclining rate structure. CWRS believes that this new rate structure will encourage waste reduction and recycling.

Other short-term activities will focus on public education and information. Here again, CWRS has been at the forefront with its work with the Lodi Unified School District and other local schools. a newsletter. speakers' bureau, and community accounts program to mention only a few. CWRS will continue these programs, and in most cases expand them to address the City's upcoming new recycling programs. CWRS has also been at the forefront offering technical assistance programs and waste audits to local businesses and industries desiring waste minimization programs. These programs will continue and expand over the short term.

The City's role in this effort will be to coordinate with local community groups and nonprofit organizations: develop a city-sponsored public recognition and awards program: and to develop a block leader program to encourage participation in CWRS' recycling programs, using the City's community service officers. The City will also be involved in developing procurement guidelines to encourage City departments to buy recycled products and amending City zoning and building codes to incorporate recycling into new developments. In addition, the City will be looking at ways to create local markets for recyclable materials by encouraging local use of recyclable materials and compost and encouraging small industries which use secondary materials as feedstock.

A major activity during the short-term time frame will involve CWRS efforts to expand its materials recovery and composting facility. An environmental impact report for this facility has been prepared, which is planned to be expanded onto property adjacent to the Lodi Transfer Station. In addition to environmental review, CWRS will need to complete final site design and apply for operating permits from the California Integrated Waste Management Board. the Regional Water Quality Control Board, and the San Joaquin County Air Pollution Control District. This facility is expected to be completed and fully operational by the medium-term time frame.

CWRS has also applied for a use permit to relocate its collection Corporation yard and include an additional buy-back facility at this location. There is the potential that this site can be converted to a recycling processing center subsequent to a review whether an additional environmental

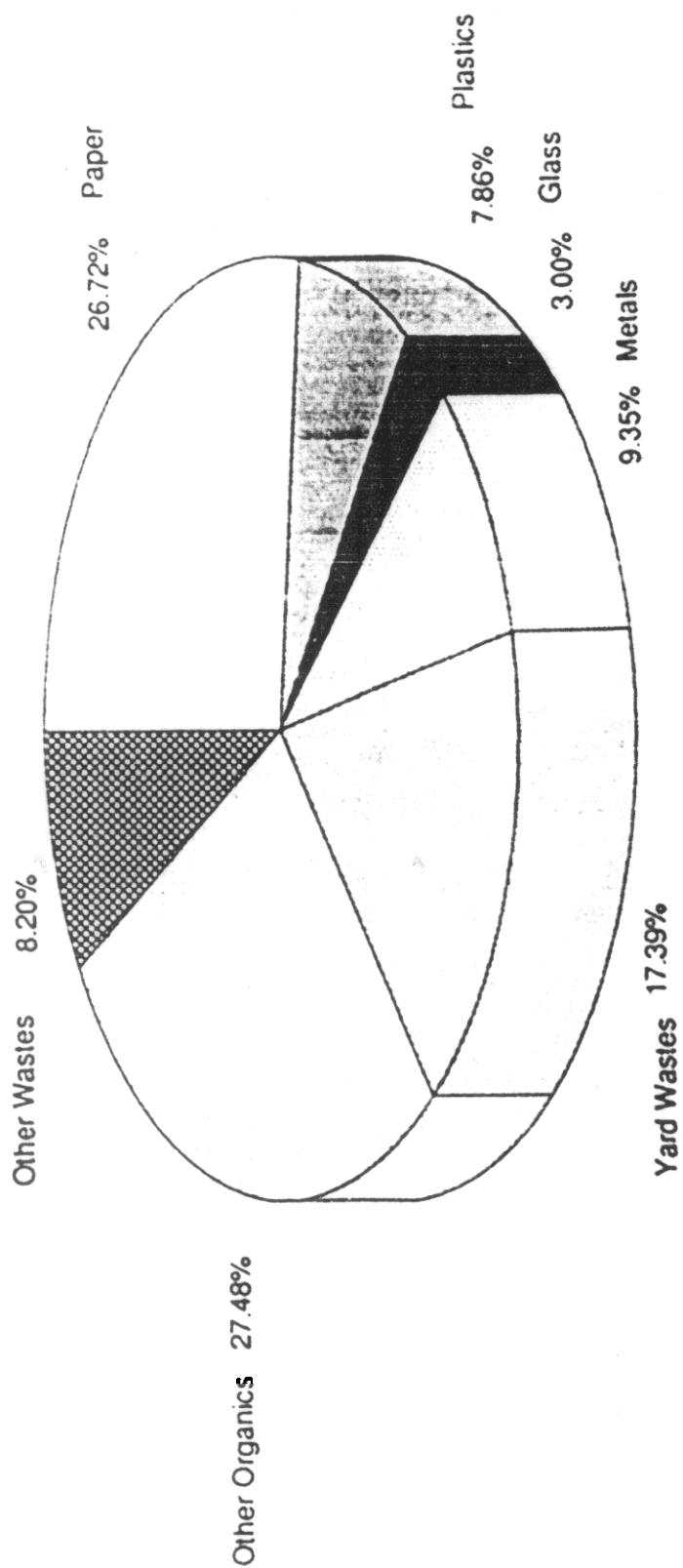
assessment for this project is required. In addition, CWRS will begin separating tires and white goods at the Lodi Transfer Station.

Summary of Selected Programs January 1, 1995 - December 31, 1999

In the medium term, the CWRS expanded materials recovery and composting facility will be fully operational. This facility could ultimately serve as a regional composting center for northern San Joaquin County. Other activities during the medium term will focus on monitoring programs which were implemented in the short term and fine tuning them as needed.

Figure 1

Waste Composition City of Lodi 1990



INTRODUCTION

1 INTRODUCTION

1.1 Legislative Basis for the Source Reduction and Recycling Element

In September 1989, the California legislature passed Assembly Bill (AB) 939, the California Integrated Waste Management Act of 1989. This bill was signed into law by Governor George Deukmajian on September 29, 1989, and filed with the Secretary of State on September 30, 1989. This legislation was drafted in response to the need to divert materials from landfills in order to preserve decreasing landfill capacity and natural resources. AB 939 mandates that by January 1, 1995, each California city and county must divert 25 percent of all solid waste from landfill or transformation facilities through source reduction, recycling, and composting activities. By January 1, 2000, the required diversion rate is 50 percent, which can include a diversion rate of up to 10 percent from transformation processes such as waste to energy.

AB 939 replaces the existing county solid waste management plan process with a source reduction and recycling element (SRRE) for each city and county wastestream and an integrated waste management plan (IWMP) for each county. AB 939 restructures the solid waste management program in California with the objective of implementing an aggressive integrated waste management program, promoting, in order of priority, the following waste management practices:

- source reduction
- recycling and composting
- environmentally safe transformation (incineration, pyrolysis, or biological conversion) or land disposal
- environmentally safe land disposal

1.1.1 City Requirements

By July 1, 1991, AB 939 requires each city to prepare, adopt, and submit to the county an SRRE for management of solid waste generated within the city that includes all of the following components.

- a waste generation component
- a source reduction component
- a recycling component
- a composting component
- a special waste component
- an education and public information component
- a disposal facility capacity component
- a funding component
- an integration component

1.1.2 County Requirements

By July 1, 1991, AB 939 requires each county to prepare an SRRE for its unincorporated areas with components the same as those in the city elements. Each county must also prepare a countywide IWMP and a county-wide siting element specifying areas for transformation or disposal sites to provide capacity needed for a 15-year period, so that solid wastes generated in the county that cannot be reduced or recycled will be handled safely.

1.1.3 Time Extension

AB 2092 (proposed March 3, 1991) was intended to extend the deadlines for the city and county SRREs and household hazardous waste elements (HHWEs) until January 1, 1992. The bill would also have required each city and county to prepare and submit a written report on the status of its SRREs and HHWEs to the California Integrated Waste Management Board (CIWMB) by July 1, 1991. Californians Against Waste attempted to amend the bill to remove inert materials, scrap metals, and sewage sludge from the list of what counts towards the 25 percent diversion goal, which has stalled its progress through the legislature. According to a Septem-

ber 17, 1991, legislative update prepared by the Santa Clara County Office of Toxics and Solid Waste Management. Assemblyman Byron Sher is unwilling to extend the deadlines without "clarifying the rules of the game." According to the update, Assemblyman Sher believes the original legislation needs reform as he believes that jurisdictions are meeting the letter of the law but not the intent by counting existing diversion activity that occurred without action by the jurisdictions. This bill is not expected to be signed before the early part of 1992.

1.1.4 General Requirements

The required waste diversion amounts will be based on the calculated amount of solid waste existing on the date of approval of the city or county SRRE.

To determine the base rate of solid waste from which these recycling levels will be calculated, "solid waste" includes only

- materials that are normally disposed of at a landfill or transformation facility
- solid wastes currently diverted from a landfill or transformation facility because of source reduction, recycling, or composting programs

Agricultural wastes and other wastes not normally disposed of at landfills are not included in this base rate calculation.

The 50 percent diversion rate may include up to 10 percent diversion through transformation, provided that the front-end removal of recyclable materials and other specified conditions are met.

1.1.5 Other Provisions of AB 939

Revisions to existing law in AB 939 include (1) replacement of the California Waste Management Board by a California Integrated Waste Management Board with six full-time members. (2) implementation of new requirements in the city and county waste management planning process. (3) recasting of the waste management framework. and (4) various funding mechanisms for the required programs and plans. The State has hired more than 250 new employees to staff the new CIWMB. The following requirements were recodified by AB 939:

Solid waste facilities. AB 939 establishes a comprehensive statewide system of permitting, inspections, enforcement, cleanup, maintenance, and closure for solid waste facilities. While the system will continue to be implemented by local jurisdictions where applicable, the state's role has generally been strengthened. Specifically, local enforcement agencies (**LEAs**) will be subject to CIWMB certification. The CIWMB will prepare and adopt certification regulations specifying requirements that the **LEA** shall meet before being designated as an enforcement agency.

The CIWMB will also adopt minimum standards for solid waste handling and disposal to protect air, water, and land from pollution. Owners or operators of solid waste landfills must also provide financial assurances for closure and postclosure maintenance.

Enforcement- AB 939 outlines a system of civil penalties, corrective actions, appeals, and judicial review for the enforcement of terms and conditions of solid waste facility permits. The CIWMB may issue a cease and desist or cleanup and abatement order if (1) the **LEA** fails to issue such orders and (2) the CIWMB agrees that such orders need to be imposed.

Solid waste disposal site cleanup and maintenance. Every operator of a solid waste landfill required to have a permit will be **assessed** a fee which will be placed in the existing solid waste disposal site cleanup and maintenance account in the solid waste management fund. Money in the account will be controlled by the CIWMB and allocated to cities and counties for uses regarding the safe operation, closure, and maintenance of solid waste landfills.

Household hazardous wastes (**HHWs**). AB 939 requires the CIWMB to develop and implement a public information program to provide information on the proper disposal of HHWs and give technical **assistance** to local public agencies to establish HHW management programs.

Finances. Every operator of a solid waste landfill shall pay a **quarterly** fee to the Board of Equalization, based on all solid waste disposed of at each disposal site on or after January 1, 1990. The money will be used for administration and other purposes specified by the legislature, which will appropriate funds from the account.

Garbage and **refuse** disposal. AB 939 establishes criteria **for** (1) the formation of garbage disposal districts, funded by **property** taxes,

(2) franchise waste management within a county, (3) contract waste management within a city, and (4) solid waste enterprises to operate within a community. It also contains restrictions on burning garbage.

1.1.6 Relationship of AB 939 to Other Legislation

Several pieces of cleanup legislation related to AB 939 have passed that modify the impact of the legislation. These bills include

Senate Bill (SB) 1322. This bill establishes a comprehensive set of state programs to promote (1) integrated waste management, (2) Source reduction, and (3) market development for recovered materials. SB 1322 will establish recycling market development zones with regulatory and fiscal incentives. In addition, the **CIWMB** will be required to provide technical assistance to enable LEAs to conduct waste reduction evaluations and implement recovery of high-grade white office paper. A statewide public information and education program will be initiated to encourage participation by the general public, business, government, and industry in all phases of integrated waste management.

Assembly Bill 1820. AB 1820 permits the use of pre-existing data or studies that accurately characterize the waste generated and disposed of within the jurisdiction. This bill requires (1) only the amount of Seasonal sampling necessary to achieve the 25 percent diversion target for the 1995 deadline (rather than the "maximum extent possible"), (2) the constituent materials identified in the waste characterization to be representative of the solid waste generated (in contrast to the former language: to be representative "to the maximum extent feasible"), and (3) waste quantities to be "as accurate as possible" to enable the **CIWMB** to accurately measure the diversion requirements.

Assembly Bill 2707. This bill requires each city to submit a separate HHWE to the county by July 1, 1991. AB 939 had included a HHW component in the SRRE. As a result of AB 2707, this component was elevated to the status of an "Element."

Assembly Bill 3992. This bill defines "solid waste" for the purpose of determining the base amount from which diversion levels shall be calculated. It also requires the **CIWMB** to consider only relevant circumstances in determining civil penalties for any city or county which fails to implement its SRRE.

1.2 Waste Generation

In 1990, 67.231 tons of solid waste were disposed of by the City of Lodi (City) residents and businesses.

Twenty-nine percent of the City's disposed wastestream is generated from residential sources, while 17 percent is from commercial and 21 percent is from industrial and roll-off boxes. Thirty-three percent is from Self-haulers who haul their own waste to San Joaquin County's (County's) landfill or to the Lodi Transfer Station. Almost 54 percent of the City's generated wastestream is diverted from landfill disposal through a wide variety of recycling, source reduction, and composting activities, including California Waste Removal Systems' (CWRS) extensive commercial and industrial source separation programs.

Some waste is diverted from disposal but is not considered "countable" towards diversion rates due to the fact that these wastes (tires and wood) are burned at waste-to-energy facilities. This is called transformation in AB 939. These amounts are not included in the diversion quantities amounts to avoid confusion. Any wood and tires listed in the diversion tables are reused or recycled and not transformed. Note that transformation amounts are listed under "other organics."

1.3 Lodi's Waste Diversion Program History

The following is a brief history of the waste diversion programs implemented in the City.

Tokay Recycling is a buy-back/processing center located in Lodi. Tokay Recycling accepts all materials for which there is a market including high density polyethylene (HDPE) and telephone books. It accepts industrial and postconsumer corrugated high-grade paper (computer paper, colored, and white ledger), newsprint, polyethylene terephthalate (PET), HDPE, refillable beverage containers, California redemption glass, used beverage containers, scrap aluminum, nonferrous metals (brass, copper, etc.), and phone books.

Ramrock Environmental Recycling Company, Incorporated recycles asphalt, broken concrete, and reinforced concrete generated within the City. It is located just outside of Lodi in Locketford.

California Waste Removal Systems, Incorporated is located in Lodi and provides an extensive array of comprehensive integrated solid waste

management services to the City. These services include solid waste collection services, and operation of the CWRS's materials recovery facility (MRF), transfer station, recycling center, and composting facility. CWRS's extensive and comprehensive recycling activities include a curbside program, collection service at churches, businesses, and schools, buy-back centers, and public education.

The curbside program provides three color-coded recycling pails for newspaper, aluminum, PET plastics, tin cans, and glass. Drop-off boxes are used to collect newspaper, cardboard, glass, and aluminum from churches, businesses, various nonprofit organizations, and commercial industries.

CWRS operates two California-certified redemption centers which accept newspaper, cardboard, aluminum cans, HDPE and PET plastic, glass, high-grade ledger paper, and computer paper.

CWRS also has public awareness/public education programs related to its office paper, community accounts, and Lodi Unified School District recycling programs.

The office paper program sponsored by CWRS requires participating businesses to designate a "recycling coordinator to oversee and encourage other employees to participate in the plan.

The community accounts program established by CWRS is designed for schools, clubs, and other nonprofit organizations. CWRS will credit participants for their recyclables. The participants can instead take the materials to one of the CWRS buy-back centers to credit their community account.

The Lodi Unified School District works with CWRS and the City. This program involves lessons about the importance of recycling and preservation of natural resources for kindergarten through eighth grade. A student assembly for elementary students is also held to demonstrate how recycling works. The schools use the funds raised from their sites' collection of newspapers and aluminum cans for extracurricular activities.

CWRS also contributes a portion of the funds generated from the sale of recyclable materials from its curbside program directly to Lodi schools for public education special events and classroom needs.

1.4 Goals for the Lodi SRRE

1.4.1 Definition of Goals and Objectives

The primary goal of the Lodi SRRE is to meet the state-mandated waste diversion goals of 25 and 50 percent by 1995 and 2000, respectively, or as they may be revised by subsequent legislation.

Goals are stated in general terms and are not quantified by target dates, waste types, or volumes. Goals are general statements of policy and will be used to guide the overall direction of the solid waste management program within Lodi.

Objectives are more specific and serve to target certain aspects of the overall goals. Objectives are based in part on local considerations necessary to achieve state-mandated diversion rates. Generally, objectives are stated in measurable and quantifiable terms and are thus presented in their respective components.

1.4.2 Integrated Waste Management Goals for Lodi

Overall Program Goals

1. Structure waste management practices within the City to promote increased source reduction, recycling, and composting to meet or exceed the following waste diversion objectives: 25 percent by January 1, 1995, and 50 percent by January 1, 2000.
2. Support and encourage regional solutions appropriate to waste management problems, where possible and practical.
3. Maximize recycling opportunities within the City.
4. Support and encourage public education and information programs which lead to a better understanding of solid waste management issues and which foster increased participation in City and regional programs by local citizens, businesses, service groups, schools, and other interested parties.
5. Encourage and foster the participation of the private solid waste refuse collectors, recyclers, citizen action groups, schools, and other interested parties, such as the Lodi Chamber of Commerce, the Woman's Club of Lodi,

League of Women Voters, and the Sierra Club. in the integrated solid waste management planning process and the implementation of necessary programs.

6. Provide for sufficient landfill capacity for those wastes generated within the City that cannot be diverted.
7. Develop local markets. wherever feasible and possible. for the wastestream components comprising the City's landfill diversion targets. Encourage the establishment of waste diversion programs which are responsive to the needs and desires of the City's business community. consistent with public policies established by the City Council.

1.4.3 Short-term Goals (1991-1994)

Source Reduction Goals

1. Encourage public participation in source reduction by educating the public about the consequences of their decisions with respect to the initial use, reuse, and ultimate disposal of products they may purchase.
2. Encourage source reduction practices in all aspects of City operations.
3. Minimize the quantity of solid waste generated.

Recycling Goals

1. Maximize opportunities for City residents to recycle.
2. Foster a positive environment by creating local markets for recyclable materials wherever possible and practical to do so.
3. Continue current levels of recycling.

Composting Goals

1. Compost as much as possible of the yard wastes generated within the City of Lodi.
2. Promote a community-based yard waste collection and processing program.
3. Promote centralized local composting of yard wastes generated in Lodi.

Special Wastes **Goals**

1. Provide opportunities for recycling special wastes generated within the City such as sewage sludge, ash, tires, white goods, abandoned vehicles, dead animals, and asbestos.

Public Information and Education Goals

1. Encourage public information and education programs in the community in order to heighten the public's awareness of solid waste management issues.
2. Involve private solid waste refuse collectors, recyclers, citizen action groups, and other interested parties in the integrated solid waste management planning process and the implementation of necessary programs.
3. Support and encourage ~~interjurisdictional~~ cooperation in integrated waste management planning **and** implementation.
4. Promote and support ~~public/private~~ partnerships which work to achieve integrated solid waste management in Lodi. Goals for the medium term are related to reviewing each program for effectiveness and revising or modifying the programs ~~as~~ needed to meet the diversion goals.

Disposal **Capacity** Goals

1. Develop and maintain sufficient disposal capacity ~~for~~ the City of Lodi's disposal needs.

Funding Goals

1. Provide funding adequate to implement all the program objectives outlined in the **SRRE**.

Integration Goals

1. Integrate all programs to achieve state-mandated diversion goals.

1.4.4 Medium-term Goals (1995-1999)

1. Review each program for effectiveness measured by meeting time lines, diversion goals, and monies to implement. Reviews **shall** be completed **by** 1995.
2. Continue effective programs to reach 50 percent level of source reduction and recycling rates. Decisions to continue programs shall be completed **by** 1995.
3. Revise the programs which are not effective to help the City reach its goals. Revisions shall be completed **by** 1996.
4. Add any additional programs deemed necessary to meet the remaining diversion goals by the end of 1999. Program additions shall be implemented no later than June 1998.
5. The integration component (see Section 10.2) presents current and future diversion quantities (in weight) for source reduction, recycling, and **composting**. This section also presents percentages of diversion from total waste generated for these categories.

1.5 Organization of Lodi's SRRE

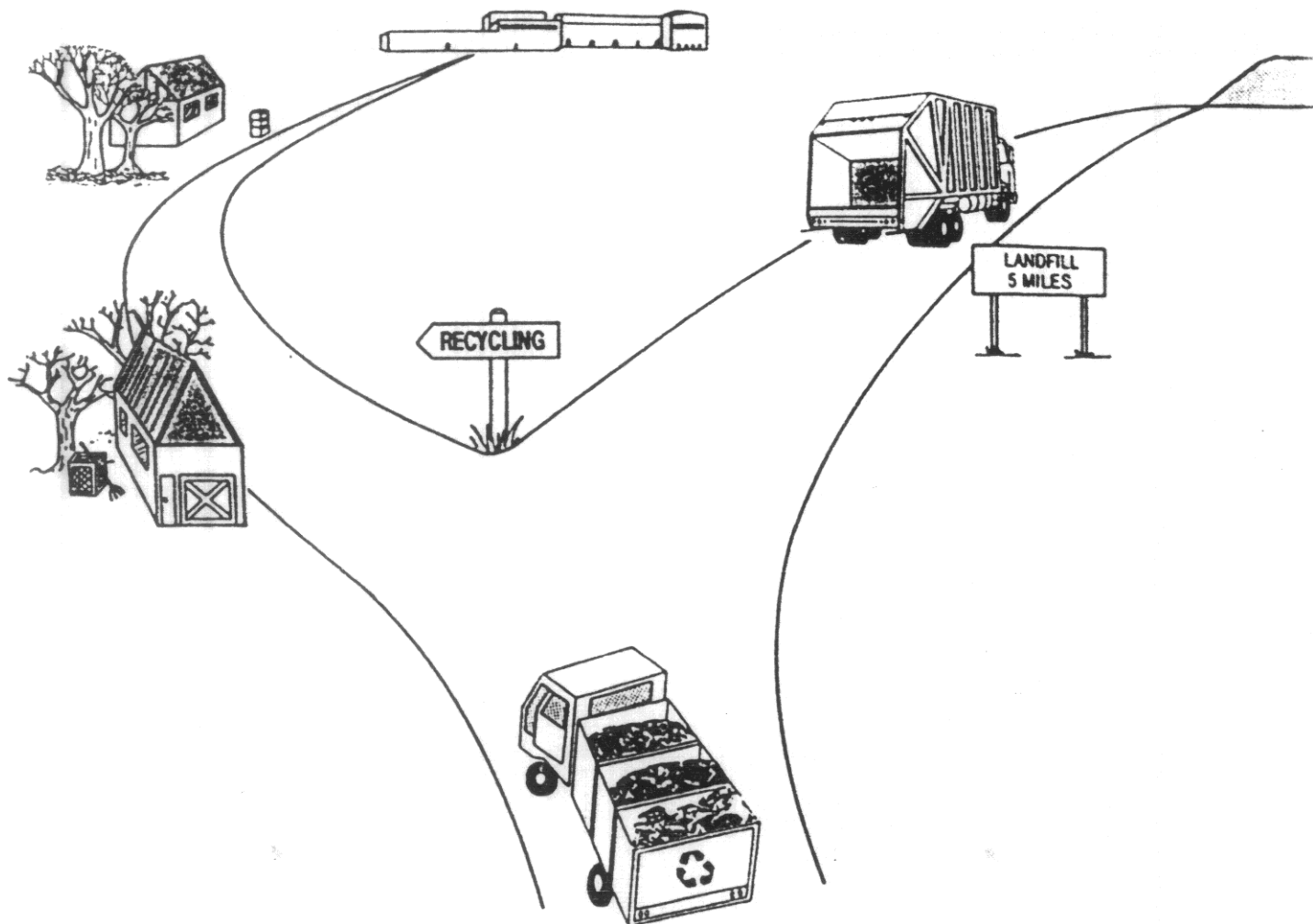
Consistent with **the** emergency and draft regulations **implementing** AB 939, the SRRE is presented in the following sections:

- | | |
|--|------------|
| • Waste Generation Component | Section 2 |
| • Source Reduction Component | Section 3 |
| • Recycling Component | Section 4 |
| • Composting Component | Section 5 |
| • Special Waste Component | Section 6 |
| • Education and Public Information Component | Section 7 |
| • Disposal Capacity Component | Section 8 |
| • Funding Component | Section 9 |
| • Integration Component | Section 10 |

- National Recycling Coalition
Densities for Recyclables Appendix A
- Evaluation Approach for
Component Alternatives Appendix B
- San Joaquin County Waste
Characterization Study
for Lodi Appendix C
- Public Information Literature
from CWRS Appendix D
- Use Permit Application CWRS
Transfer Station/Resource
Recovery Facility and Recycling
Center Expansion Appendix E
- Waste Export Agreements Appendix F

The organization of topics within each component generally follows the format presented below. The format deviates slightly between components, however, as applicable to each respective component.

- introduction
- component goals
- component objectives
- existing conditions description
- evaluation of alternatives
- selection of programs
- program implementation
- monitoring **and** evaluation



SOLID WASTE GENERATION

2 WASTE GENERATION COMPONENT

2.1 Introduction

This sections summarizes the results of an initial solid waste generation study performed for the City of Lodi by the San Joaquin County Department of Public Works, Solid Waste Division. to satisfy the requirements for an initial solid waste generation study as defined in AB 939 and AB 1820. AB 939 defines a solid waste generation study as a "study undertaken by a jurisdiction to characterize its solid wastestream." "Solid waste" is defined as all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage; trash; refuse; paper; rubbish; ashes; industrial wastes; demolition and construction wastes; abandoned vehicles and parts thereof; discarded home and industrial appliances; dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste; manure, vegetable, or animal solid and semisolid waste; and other discarded solid and semisolid wastes. Solid waste does not include hazardous waste.

The study was divided into two parts: a waste disposal study which consisted of a representative sampling of wastes and which was conducted by the San Joaquin County Public Works Department, Solid Waste Division. for the City of Lodi and a waste diversion study which was conducted by the City. When combined, the results of the disposal and diversion studies yield the total amount of solid waste generated in the City of Lodi. Expressed as an equation, the total solid waste generated is computed as follows:

$$\text{GEN} = \text{DISP} + \text{DIVERT}$$

where:

GEN = the total quantity of solid waste generated within the jurisdiction.

DISP = the total quantity of solid waste generated within the jurisdiction, which is transformed or disposed in permitted solid waste facilities.

DIVERT = the total quantity of solid waste generated within the jurisdiction, which is diverted from permitted solid waste transformation and disposal facilities, through existing source reduction, recycling, and composting programs.

The waste disposal characterization was performed by the San Joaquin County Department of Public Works, Solid Waste Division, using a quantitative field methodology. Waste diversion quantities were determined using a material accounting system that collected information from both the generators of diverted materials and from the collectors of those materials. When combined, the information from the two sources amounts to a comprehensive accounting of solid waste diversion. Moreover, in many cases, the combined information provides a crosscheck of reported quantities from two sources. Details of the waste disposal and diversion studies are presented in the following sections.

2.2 Local Demographics

The City of Lodi was incorporated in 1906. The City of Lodi is located in San Joaquin County approximately 13 miles north of Stockton, 34 miles south of Sacramento, and 90 miles east of San Francisco. The City of Lodi has experienced phenomenal growth in the last 10 years. Data obtained from the 1990 census indicate that Lodi's population is 51,874, which represents a 47 percent increase over the 1980 population of 35,221. Lodi's population is approximately 11 percent of the total population of San Joaquin County. Lodi is San Joaquin County's second largest City, second only to Stockton.

The City is surrounded by vineyards. These vineyards are primarily Zinfandel and Flame Tokay grapes. References to these grapes can be found throughout the City. The Lodi Grape Festival is an 80-year-old tradition created to celebrate the fall harvest. The festival is a nationally recognized event which attracts visitors from all over the region. Agriculture is a major contributor to Lodi's economy, as well as providing valuable open space around the community.

The City of Lodi has a strong sense of community with its well-maintained tree-lined streets in the residential areas and attractive buildings and historical structures in the downtown area. Lodi Lake Park and Nature Area and numerous other parks are a valuable asset to this small town community.

Lodi's city limits are generally defined by the Mokelumne River on the north, the Central California Traction Company railroad tracks on the east, Harney Lane on the south, and the Woodbridge Irrigation District canal on the west. The City contains 5,091 acres. Residential land represents 47 percent of the incorporated area; commercial property represents 8 percent; industrial property represents 11 percent; 22 percent is dedicated to public and quasi-public uses, including parks; 4 percent is agricultural; and 8 percent is vacant land (City of Lodi *Draft General Plan, Draft Environmental Impact Report*, April 1990).

According to the City's Draft General Plan, Lodi's housing mix changed substantially in the 1980s with a dramatic increase in the number of multi-family dwelling units.

City solid waste is currently hauled after processing to the North County Recycling Center and Landfill (North County Landfill). Prior to its closing in September 1991, Lodi's refuse was taken to the Harney Lane Landfill in San Joaquin County. Processing takes place at the CWRS Transfer Station/Materials Recovery Facility and Recycling Center at 1333 East Turner Road in Lodi. AB 939 defines a transfer station as those facilities utilized to receive solid wastes, temporarily store, separate, convert, or otherwise process the materials in the solid wastes, or to transfer the solid wastes directly from smaller or larger vehicles for transport, and those facilities utilized for transformation. The facility also has an MRF. AB 939 regulations define an MRF as a permitted solid waste facility where solid wastes or recyclable materials are sorted or separated, by hand or by use of machinery, for the purposes of recycling or composting. CWRS separates

the recyclables such as cardboard, newspaper, PET, HDPE, polystyrene plastics, aluminum, tin, office and computer paper, glass (clear, green, and brown), and wood. Wood is sold to local waste-to-energy facilities according to CWRs officials. Sorted construction and demolition waste is sold to gravel companies for reuse. The other recyclables are baled and transported to local brokers for sale. There is also a recycling center and composting facility on site.

The Harney Lane Landfill, which is owned and operated by San Joaquin County, has reached capacity and has been replaced by the North County Landfill. The North County Landfill is located at 17916 East Harney Lane in the unincorporated area near Lodi. The new facility is just 1.5 miles east of the recently closed Harney Lane Landfill, which is Lodi's former disposal site. The North County Landfill opened November 1, 1991. The Harney Lane Landfill, the City's former solid waste disposal site, was, at one time, owned by the City. It was sold to the County for \$1 in exchange for an understanding that the County would provide a disposal site or transfer station, or both, reasonably close to the City. Either party may terminate the agreement by giving a 4-year notice.

2.3 Wastestream Flow

In keeping with the requirements of AB 939, the City of Lodi's wastestream was segmented into the following sources by the San Joaquin County Department of Public Works, Solid Waste Division:

- Residential: solid waste originating from single-family or multifamily dwellings.
- Commercial: solid waste originating from stores, business offices, and commercial warehouses; hospitals, educational and health care facilities; military and correctional institutions; nonprofit research organizations; and government offices.
- Industrial: solid waste originating from mechanized manufacturing facilities, factories, refineries, construction and demolition projects, and publicly operated treatment works, and/or solid wastes placed in debris boxes.
- Other: AB 939 allows other source categories to be used to identify sources of solid waste which are not categorized.

- Other: AB 939 allows other source categories to be used to identify sources of solid waste which are not categorized as residential, commercial, or industrial sources of waste generation. In the City of Lodi's case, the "other" category was defined by San Joaquin County Department of Public Works as self-hauled wastes. Self-hauled wastes include residential- and commercial-type wastes which are hauled directly to either a landfill or transfer station.

Solid wastes flow from waste generators into disposal or recovery channels through a variety of flow paths in Lodi including

- Franchise garbage collection (via CWRS) with processing at the CWRS Transfer Station/Materials Recovery Facility and Recycling Center, and disposal at the North County Landfill.
- Collection of selected recyclables from residential generators.
- Refuse self-hauled to either the North County Landfill and Recycling Facility or to the CWRS Transfer Station/Materials Recovery Facility and Recycling Center. (Note: Refuse collection service is mandatory in Lodi. Participation in the curbside recycling service is not mandatory.) Residents and businesses may self-haul their refuse with a permit from the City.
- Several buy-back and drop-off facilities that accept a variety of materials dropped off by self-haulers.
- Numerous nonprofit collectors that collect a variety of recyclable materials.
- Waste collected/processed for transformation are hauled to various biomass cogeneration facilities. These facilities are permitted to operate by their local air emission control districts and planning commissions. Specific facilities cannot be designated, since the destination changes frequently depend on market price.

After collection, waste generated in the City of Lodi enters one of four channels: landfill disposal, composting, recycling, or transformation. Some wood wastes generated in the City of Lodi are presently transformed at two nearby incinerators. This does not count towards 1995 AB 939 diversion rates. After 1995, 10 percent diversion of the total required diversion rate of 50 percent can use transformation amounts towards the state-mandated goals. Details of the waste disposal and diversion studies are presented in the following subsections.

2.4 Solid Waste Disposal Study

The purpose of the solid waste disposal study conducted by the County was to determine the percentages and quantities of various waste types found within the City of Lodi. An initial waste characterization study was performed by San Joaquin County for the City of Lodi at the Lodi Transfer Station (see Appendix C). The waste categories and waste types that were sampled are noted in Table 2-1 and also in the County's waste characterization study in Appendix C. Field work for the disposal characterization was conducted by the County in July and August 1990. During the study, six samples were taken from the residential, commercial, industrial, and self-haul wastestreams. These six samples were statistically similar enough to the County data that the County data were used. The County data were based on 30 samples from each wastestream. In November 1990, the County again sampled Lodi's wastestream to assess seasonal variation.

2.4.1 Current Waste Collection and Disposal Practices

Operation of refuse collection services in Lodi is managed through a franchise system. Residential and commercial rates are controlled by the City based upon the findings of an annual report. The franchise hauler has exclusive collection rights within the franchise area for residential, commercial, and industrial service. Collection is mandatory within city limits (City Code, Section 11-8). Service for commercial and industrial customers is customized to fit the needs of each respective customer. Self haulers, residents, and contractors can also self-haul directly to the CWRS Transfer Station/Materials Recovery Facility and Recycling Center. Self-hauled wastes comprise about 33 percent of the City's waste disposal quantities according to the County's waste characterization study.

2.4.2 Methodology

The solid waste disposal characterization consists of two elements of information that, when combined, yield the results required by AB 939. The first element is an estimate of the composition of each of the wastestream sections defined in Section 2.2. which are residential, commercial, industrial, and self-haul waste. Waste composition is the description of the proportions by weight of various materials in a wastestream. The waste sampling process involved sorting random samples of approximately 200 pounds into waste types and categories and weighing each type individually.

The second element is the measure of the total flow rate of each wastestream segment. Flow rate is based on landfill log records and is expressed in units of weight per time, such as tons per day. Multiplying the flow rate for a wastestream segment by the corresponding segment's composition yields an estimate of flow rate by material types for that segment, such as the number of tons per day of newspaper or aluminum cans.

2.4.3 Waste Quantity Investigations

Waste disposal numbers for the residential, commercial, and industrial wastes were provided by CWRs. Self-haul disposal numbers were provided by CWRs for those wastes self-hauled to its transfer station/materials recover facility, recycling center, and composting facility in Lodi. San Joaquin County provided information on wastes self-hauled to County facilities.

2.4.4 Waste Composition Investigation

The waste composition investigations were conducted by San Joaquin County Department of Public Works, Solid Waste Division, and are described in Appendix C. Waste composition for the City's wastestream is summarized in Figure 1.

2.4.5 Results

According to the waste composition study performed by the County, the largest waste category in the City's waste disposal quantities is "other organics" at over 27 percent of the landfilled wastestream. Broken down, the percentages for waste types in the other organics category are food -

10.98 percent; tires - 1.64 percent; wood - 8.01 percent; agricultural wastes - 0.45 percent; manure - 0.11 percent; and textiles - 6.29 percent. Paper comprises the second largest category at almost 27 percent; followed by yard waste at 17 percent; metals at 9 percent; "other wastes" (inert and hazardous) at 8 percent; plastics at almost 8 percent; and glass at 3 percent. A summary of the County's disposal quantity investigation is presented in Appendix C.

Thirty-three percent of the landfilled wastestream in Lodi comes from self-haulers. Residential wastes make up 29 percent. industrial and roll-off boxes 21 percent. and commercial 17 percent. Table 2-2 lists the waste disposal quantities by source. Note that Table 2-3 summarizes, by waste categories, the amount of waste disposed as well as the amount of wastes diverted, transformed, and generated for the City of Lodi.

2.4.6 Seasonal Variation

The following information is taken from the City of Lodi **Waste Characterization Study**. San Joaquin County Department of Public Works. Solid Waste Division, January 10, 1991.

In November 1990, the County performed a partial sampling of the City of Lodi's wastestream to determine if there was a significant variation in its wastestream due to seasonal factors. A total of six samples were taken from the residential, self-haul, commercial, and industrial wastestreams. Using the same statistical procedures described above, the seasonal samples were compared with samples taken earlier in the year.

The residential and industrial wastestreams were very similar to the earlier sampling period. The commercial wastestream was statistically similar in all significant types and categories. The self-haul wastestream was more dissimilar to the earlier study than were the other three wastestreams. However, most of the waste types that were different comprised a very small portion of the total solid wastestream (0.37 percent residential, 5.44 percent self-haul, 4.13 percent commercial, and 2.01 percent industrial).

Overall, the seasonal sampling indicated very little change in the wastestream characteristics of the two seasons. In statistical terms, the initial study is representative of the population (Lodi's wastestream) and, for the most part, the

seasonal sampling may be considered a subset of the population.

Generally there are two seasons in the San Joaquin County area: summer and winter. These also may be characterized as wet versus dry seasons. July and November were selected for sample periods in an attempt to sample wastes from the two seasons.

Since the wastestreams were generally similar for the two sampling periods, data from the two sampling periods were combined together to determine the percentages of the total wastestream. This procedure slightly adjusted the overall percentages of the various waste types and categories, reflecting seasonal variations.

2.5 Solid Waste Diversion Characterization

2.5.1 Current Solid Waste Diversion Practices

The flow of materials diverted from a wastestream is more complex than that from materials destined for disposal on the landfill. This complexity occurs because the various materials follow different routes of collection and processing and are handled by many different operators. There are ten recycling centers throughout Lodi. In addition, private collectors divert paper, glass, plastic, metals, organic material, and inert solids such as concrete and asphalt. Curbside collection of recyclable materials is available to the franchise hauler. The various waste diversion programs are more specifically described in the Recycling Component, Section 4.

2.5.2 Methodology

Solid waste diversion characterization employed a multipronged approach to quantify diversion activities within the City. This approach provided a crosscheck and backup means to collect the data. The diversion characterization utilized (1) aggregated information provided by the franchise hauler, (2) a mail survey of commercial and industrial businesses, (3) County data, (4) data from the other local and regional recyclers, and (5) telephone interviews to develop a comprehensive accounting of materials estimated to be diverted from the wastestream. Information provided by the franchise refuse hauler and other local and regional recyclers provided general data on both the residential and commercial wastestreams

Again, due to proprietary concerns, this information was not provided in a form which would disclose information about individual recyclers.

A total of 1,500 commercial and industrial businesses within the incorporated limits of the City of Lodi were surveyed by mail. Four hundred and four (404) businesses responded. The response rate was 27 percent. The business list was provided by the City of Lodi using the City's electric utility customer list. In addition, several businesses such as diaper services, nurseries, and recyclers of inert materials were contacted by telephone for information.

The diversion study attempted to chart the flow of each type of waste material. The study requested that the generators report who collected their recyclables. In addition, the businesses involved in recycling, collecting, or processing were asked for information concerning the purchasers of the recyclable materials. Data from commercial/industrial generators which could be traced to specific collectors were eliminated for tabulation when those collectors also reported data for that waste type, because the study assumed the collectors' data to be more accurate. The approach outlined above was used to reduce the potential for double counting of reported quantities. In most cases, survey respondents did not identify collectors for their recycled materials as well as identifying quantities.

Source reduction data were obtained through a survey which accompanied the business recycling survey. In addition, diaper services operating within the City or who had accounts within the City were surveyed via telephone. Approximately 217 tons of single-use diapers were diverted from the City of Lodi's wastestream in 1990 through the use of cotton diapers, with 4,500 single-use diapers per ton of garbage estimated by the U.S. Environmental Protection Agency (Diapers in the **WasteStream**).

The source reduction surveys documented the use of double-sided Copying by requesting the percentage of two-sided copies made and the total amount of papers purchased yearly. A large number of businesses reported substituting ceramic coffee mugs for disposable mugs and silverware for plastic utensils, but there was insufficient information to quantify this activity. Many respondents reuse xerographic copies as scratch paper or as packaging material. Many of the smaller businesses contacted during the survey reported that they purchased durable, reusable, or repairable goods. Again, it is difficult to quantify most instances of source

reduction despite the fact that a number of businesses reported that **they do** practice source reduction.

Survey data reported as volumes were converted to weight using Conversion factors from the National Recycling Coalition (NRC) Measurements of Reporting Guidelines, October 31, 1989. For data reported by CWRs, they provided conversion factors. Data reported for other regional and local recyclers were converted to weight using the NRC conversion factors.

2.5.3 Results

The studied results reflect a preliminary diversion estimate total close to 54 percent. There is no extrapolation of data in this study. The data from the surveys were assumed to be the total diversion characterization for the City. Table 2-4A is a summary of the diversion quantities for the City of Lodi by generator and material **types**. Table **2-48** is also a summary of **diversion** quantities by generator and material; however, this table summarizes the data within the seven waste types: paper, plastic, glass, **metals**, yard waste, other organics, and other wastes. The quantities listed are estimated at annual tons for 1990. The reported quantities are discussed below.

Tables 2-5, 2-6, and 2-7 break down the diversion quantities **into** residential, commercial, and industrial diversion quantities, respectively.

Source Reduction

The source reduction surveys indicate that a total of **48.9** tons of paper from commercial sources were **source** reduced within the City. The surveys reported a total of 102 tons of paper purchased with **percentages** of two-sided copies ranging from 5 percent to 90 percent. Each company's reported amount of paper purchased was multiplied by the **percentage** of two-sided copies reportedly made in the sum of those calculated.

A survey of two diaper services indicated that approximately 217 **tons** of single-use diapers were diverted from landfilling in the City of Lodi.

When expressed **as** a percent of wastes generated, source reduction accounts for 0.18 percent of the City of Lodi's diversion. Thus, the City of Lodi diverts 267 tons of waste through source reduction practices **such as** using cloth diapers and double-sided copies.

Recycling and Composting

The total estimated annual quantity of recycling and composting from the residential wastestream is **5,426** tons. This amounts to a recycling **rate** of almost 4 percent as a percent of total wastes generated.

The total estimated quantity of recycling and composting from the commercial wastestreams is **27,541** tons. This amounts to a diversion rate of approximately **18** percent as a percent of total wastes generated.

The total estimated quantity of recycling and composting from the industrial sector is **48,315** tons. This is a diversion rate of 32 percent as a percent of total waste generated.

Thus the total "countable" landfill diversion rate is approximately 54 percent of the waste generated within the City of Lodi.

Transformation

Approximately **2,281** tons of wood and **226** tons of tires were transformed or turned. This amounts to a transformation rate of between 1 and 2 percent expressed as a percent of waste generation.

Quantities Diverted and Disposed

The total **wastestream** generation rate for the City of Lodi in **1990** was **151,170** tons. When expressed in terms of the equation in Section 2.1, Lodi's **wastestream** can be expressed as follows:

$$\text{GEN} = \text{DISP} + \text{DIVERT}$$

or

$$151,170 = 69,738 + 81,432$$

For purposes of this equation, as defined in Title 14, disposal includes transformation. The City's landfill diversion **rate** is calculated to be approximately 54 percent as a percent of total wastes generated.

2.6 Population Projections

Table 2-8 presents population projections from 1990 through **2005** based upon a 2 percent annual growth rate. Based upon this information, Lodi's

annual growth rate is 3.947 percent. However, the City General Plan limits the City to a 2 percent annual growth rate (Kirk Evans, personal communication, January 6, 1992). The City's projected waste generation figures are based upon a 2 percent growth rate.

2.7 Waste Generation Analysis

2.7.1 Introduction

The solid waste generation analysis is based on the results of the solid waste generation study. It identified the quantities of materials generated in Lodi, by waste category, that are currently being diverted and disposed of.

The waste generation analysis contains a list of the materials that are currently being disposed of that will be diverted through the programs identified in Sections 3 through 7. The materials which will not be diverted from disposal and a justification of why are also included.

2.7.2 Quantities Diverted and Disposed

Table 2-3 summarizes, by waste category, the quantities of materials that are currently being diverted, disposed, transformed, and generated.

2.7.3 Materials Targeted for Diversion

The following is a list of materials that are currently disposed of in Lodi that are targeted for potential diversion through the diversion programs identified in the source reduction, recycling, composting, and special wastes components (see Sections 4 through 7). Only those materials that can be counted towards the AB 939 diversion mandates are shown.

Paper
corrugated containers/
kraft
newspaper
high-grade ledger
paper

Metals
aluminum cans
other ferrous
nonferrous, including
aluminum scrap
white metals
mixed metals

Plastics
PET containers
HDPE containers
film plastics

Other organics
food wastes
tires/rubber
wood wastes

Glass
California redemption
value
other recyclable glass
refillable beverage
containers

Other wastes
inert solids

Yard Wastes

2.7.4 Materials that will not be Diverted from Disposal

The following list identifies the materials that are currently being disposed of in Lodi that will not be diverted from disposal by the programs identified in this SRRE. The programs identified in this SRRE do not target the following list of materials because the materials are either nonrecyclable, the quantity being disposed of is insignificant, or there is no market (existing or future). Only those materials that qualify as solid waste under AB 939 are shown. Some of these wastes may be able to be diverted in the future as markets become available.

Paper
other paper
mixed paper

Glass
other nonrecyclable
glass

Plastics
other plastics
polystyrene foam

2.8 Solid Waste Generation Projections

Table 2-9 presents waste quantity projections from 1990 through 2005 at current rates of diversion. All dates are as of December 31 for the given year. Table 2-10 presents projected waste quantities assuming AB 939 diversion targets are achieved. For simplicity, increases in the diversion percentages in the waste quantity projections in Table 2-10 were shown only for the years ending December 31, 1994, and December 31, 1999. Otherwise, diversion percentages were shown to **continue** at the same rate for the intermediate years.

The planning guidelines specify acceptable sources of information on which to base forecasts. From the list of acceptable sources, the City has elected to base projected growth of waste generation on its City General Plan which restricts growth to 2 percent annually.

2.9 Solid Waste Data Reporting System

The City is responsible for reporting annual progress towards meeting the 25 and 50 percent diversion goals for reporting revisions to the **SRRE**.

Consistent with California Code of Regulations, Title 14, Section 18722 "O," the City must develop a system of reporting procedures which will, **as** accurately as possible, quantify data from solid waste haulers, solid waste facility operators, scrap dealers, and recycling facilities for the purposes of the preparation of the **SRRE**. This system of reporting shall be **separately outlined** in the solid waste generation study **when** it is submitted to the CIWMB.

The City will use scale data provided by the County and CWRS to **ascertain** quantities disposed of at the **North County Landfill**. Waste disposal quantities reported by the County should be substantiated by landfill log records and scale data. **With respect to** the franchise refuse hauler **operating** within the City, the County will consider revising the franchise agreement to require that waste diversion quantities be reported by waste category and waste type for each program. The City will work with CWRS to develop a quarterly or semiannual reporting system which will provide waste diversion quantities for residential, commercial, and **industrial** wastes which can be verified and substantiated by scale data, weight receipts, **sales** receipts, or some other appropriate mechanism.

The City will work with those, scrap dealers, ~~thrift~~ stores, and ~~other~~ businesses and recycling facilities operating within the City so that the waste quantities diverted are reported by waste category and waste type. The City will work with these businesses to develop a quarterly reporting system which will provide waste diversion quantities for wastes which can be verified and are substantiated by **scale** data, weight receipts. **sales receipts**, or some ~~other~~ appropriate mechanism.

Table 2-1
Waste Types Sampled in San Joaquin County's
Waste Composition Study

PAPER

Corrugated/Kraft
Newspaper
High grade
Mixed

GLASS

California Redemption
Refillable Beverage
Other Recyclable Glass
Other Nonrecyclable Glass

PLASTICS

HDPE
PET
Film Plastics
Other

METALS

Aluminum Cans
Other Ferrous
Other Nonferrous
White Goods
Mixed Metals

YARD WASTES

OTHER WASTES

Inert Solids
Household Hazardous

OTHER ORGANICS

Food
Rubber
Wood
Agricultural Crop Residue
Manure
Textiles/Leather
Other Organics

Table 2-2

**Waste Disposal Quantities for the City of Lodi
1990**

| Swrce | Tons Per Year | Percent of City Wastes Disposed |
|------------------------|------------------------------|--|
| Residential | 19,589 | 29 |
| Commercial | 11,409 | 17 |
| Industrial and Roil-OH | 13,996 | 21 |
| Self-haul | 22,237 | 33 |
| Total | 67,231 | 100 |

Note: Data for residential, commercial, and industrial wastes was provided by CWRS

Data for self haul wastes was provided by San Joaquin County Department of Public Works

This information was applied towards the waste composition information from the County's study
in Appendix C to derive the tons of material disposed of by waste type and category

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Table 2-3

**SUMMARY OF WASTES DISPOSED, DIVERTED AND GENERATED
BY WASTE CATEGORY IN THE CITY OF LODI (1990)**

| Waste Category | Diverted | | Transformed | | Disposed | | Generated | |
|---|---------------|---------------|--------------|--------------|---------------|---------------|----------------|----------------|
| | Tons | %* | Tons | %* | Tons | %* | Tons | %* |
| Paper | 4,690 | 3.11% | | | 17,964 | 11.90% | 22,654 | 15.00% |
| Plastics | 68 | 0.04% | | | 5,284 | 3.50% | 5,352 | 3.54% |
| Glass | 1,073 | 0.71% | | | 2,017 | 1.34% | 3,030 | 2.05% |
| Metals | 10,943 | 7.25% | | | 6,286 | 4.16% | 17,229 | 11.41% |
| Yard Waste | 570 | 0.38% | | | 11,691 | 7.74% | 12,261 | 8.12% |
| Other Organics | 11,701 | 7.75% | 2,507 ** | 1.66% | 18,475 | 12.23% | 32,684 | 21.64% |
| Other Wastes | 52,237 | 34.59% | | | 5,513 | 3.65% | 57,750 | 38.24% |
| Total | 81,282 | 53.82% | 2,507 | 1.66% | 67,231 | 44.52% | 151,020 | 100.00% |
| <p>* Percent of total wastestream. All numbers in this table are expressed as a percentage of generation. As a result, these numbers will appear different than the percentages of landfilled wastes in Appendix C since those are expressed as a percentage of landfilled wastes and not generated wastes.</p> <p>** Waste wood and tire transformation (Wood = 2281 tons and tires = 226.28 tons)</p> | | | | | | | | |

\\excelat\\lodi\\summary.xls

Table 2-4
Summary of Diversion Quantities for the City of Lodi
By Generator and Material Type (1990)

| Material | Residential | Commercial | Industrial | Total |
|--------------------------------|-----------------|------------------|------------------|------------------|
| PAPER (total) | 1,614.37 | 1,828.37 | 1,237.14 | 4,689.88 |
| CCC/Kraft | 346.86 | 1,073.66 | 734.15 | 2,154.67 |
| Magazines | 0.00 | 0.00 | 3.00 | 3.00 |
| Mixed Paper | 7.24 | 0.00 | 0.00 | 7.24 |
| Newsprint | 1,257.62 | 698.05 | 278.03 | 2,234.49 |
| High Grade | 2.65 | 54.97 | 152.46 | 230.08 |
| Other Paper | 0.00 | 0.90 | 62.50 | 63.40 |
| PLASTICS (total) | 18.20 | 3.54 | 46.17 | 67.91 |
| HDPE | 0.00 | 0.00 | 3.00 | 3.00 |
| PET | 18.20 | 3.10 | 3.67 | 24.97 |
| Film | 0.00 | 0.44 | 0.00 | 0.44 |
| Polystyrene Foam | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Plastic | 0.00 | 0.00 | 42.50 | 42.50 |
| GLASS (total) | 744.96 | 166.26 | 161.38 | 1,072.60 |
| Refillable Beverage | 0.79 | 0.21 | 0.32 | 1.32 |
| CA Redemption Value | 598.05 | 121.22 | 91.82 | 811.09 |
| Other Recyclable | 123.36 | 38.76 | 60.14 | 222.26 |
| Other Non-Recyclable | 22.76 | 6.07 | 9.10 | 37.93 |
| METALS (total) | 2,174.47 | 1,540.53 | 7,228.25 | 10,943.25 |
| Aluminum Cans | 291.58 | 321.27 | 41.21 | 654.06 |
| Other Aluminum | 41.49 | 27.67 | 34.00 | 103.16 |
| Bi-metal Cans | 0.00 | 0.00 | 0.00 | 0.00 |
| Steel Food & Bev. Cans | 0.00 | 0.00 | 4,031.00 | 4,031.00 |
| Other Ferrous | 1,752.98 | 1,130.11 | 2,608.67 | 5,491.76 |
| Other Non-ferrous | 08.42 | 60.48 | 513.37 | 682.27 |
| White Goods | 0.00 | 1.00 | 0.00 | 1.00 |
| HAZARDOUS WASTE (total) | 570.00 | 0.00 | 0.00 | 570.00 |
| Leaves and Grass | 570.00 | 0.00 | 0.00 | 570.00 |
| Branches and Brush | 0.00 | 0.00 | 0.00 | 0.00 |
| OTHER ORGANICS (total) | 304.12 | 151.41 | 11,245.62 | 11,701.15 |
| Food | 0.00 | 54.97 | 11,220.00 | 11,275.07 |
| Rubber/Tires | 1.71 | 75.42 | 0.50 | 77.63 |
| Wood | 85.41 | 21.02 | 24.97 | 131.40 |
| Agri. Crop Residue | 0.00 | 0.00 | 0.00 | 0.00 |
| Manure | 0.00 | 0.00 | 0.00 | 0.00 |
| Textiles/Leather | 0.00 | 0.00 | 0.15 | 0.15 |
| Diapers | 217.00 | 0.00 | 0.00 | 217.00 |
| Other Organics | 0.00 | 0.00 | 0.00 | 0.00 |
| OTHER WASTES (total) | 0.00 | 23,851.00 | 28,386.00 | 52,237.00 |
| Inert Solids | 0.00 | 23,851.00 | 28,386.00 | 52,237.00 |
| HHW | 0.00 | 0.00 | 0.00 | 0.00 |
| Appliances | 0.00 | 0.00 | 0.00 | 0.00 |
| SPECIAL WASTES (total) | 0.00 | 0.00 | 0.00 | 0.00 |
| Ash | 0.00 | 0.00 | 0.00 | 0.00 |
| Sewage Sludge | 0.00 | 0.00 | 0.00 | 0.00 |
| Industrial Sludge | 0.00 | 0.00 | 0.00 | 0.00 |
| Asbestos | 0.00 | 0.00 | 0.00 | 0.00 |
| Auto Shredder Waste | 0.00 | 0.00 | 0.00 | 0.00 |
| Auto Bodies | 0.00 | 0.00 | 0.00 | 0.00 |
| Stuffed Furn/Mattresses | 0.00 | 0.00 | 0.00 | 0.00 |
| Batteries | 0.00 | 0.00 | 0.00 | 0.00 |
| Used Oil | 0.30 | 0.00 | 0.00 | 0.30 |
| TOTAL DIVERSION | 5,426.12 | 27,541.11 | 48,314.56 | 81,281.79 |

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Table 2-4B
Summary of Diversion Quantities for the City of Lodi
by Generator and Material Type (1990) *

| Material | Residential | Commercial | Industrial | Total |
|-------------------------------|--------------|---------------|---------------|---------------|
| PAPER (total) | 1,614 | 1,828 | 1,247 | 4,690 |
| OCC/Kraft | 347 | 1,074 | 734 | 2,155 |
| Mixed Paper | 7 | 0 | 0 | - |
| Newsprint | 1,258 | 699 | 278 | 2,233 |
| High Grade | 3 | 55 | 152 | 210 |
| Other Paper | 0 | 1 | 83 | 83 |
| PLASTICS (total) | 18 | 4 | 46 | 68 |
| HDPE | 0 | 3 | 0 | 3 |
| PET | 18 | 1 | 3 | 23 |
| Film | 0 | 0 | 0 | 0 |
| Other Plastic | 0 | 0 | 43 | 43 |
| GLASS (total) | 745 | 166 | 161 | 1,073 |
| Refillable Beverage | 1 | 0 | 0 | 1 |
| CA Redemption Value | 598 | 121 | 92 | 811 |
| Other Recyclable | 123 | 39 | 60 | 222 |
| Other Non-Recyclable | 23 | 6 | 9 | 38 |
| METALS (total) | 2,174 | 1,541 | 7,228 | 10,943 |
| Aluminum Cans | 292 | 321 | 41 | 654 |
| Other Ferrous | 1,753 | 1,130 | 6,640 | 9,523 |
| Other Non-ferrous | 130 | 60 | 547 | 765 |
| White Goods | 0 | 1 | 0 | 1 |
| Mixed Metals | 0 | 0 | 0 | 0 |
| YARD WASTE (total) ** | 570 | 0 | 0 | 570 |
| OTHER ORGANICS (total) | 304 | 0 | 11,246 | 11,701 |
| Food | 0 | 55 | 11,220 | 11,275 |
| Rubber/Tires | 2 | 75 | 1 | 78 |
| Wood | 85 | 21 | 25 | 131 |
| Agri. Crop Residue | 0 | 0 | 0 | 0 |
| Manure | 0 | 0 | 0 | 0 |
| Textiles/Leather | 0 | 0 | 1 | 1 |
| Other | 217 | 0 | 0 | 217 |
| OTHER WASTES (total) | 0 | 23,851 | 28,386 | 52,237 |
| Inert Solids | 0 | 23,851 | 28,386 | 52,237 |
| Hazardous | 0 | 0 | 0 | 0 |
| TOTAL | 5,426 | 27,541 | 48,315 | 81,282 |

* Table 2-4B differs from Table 2-4A in that the diversion data is summarized within the waste categories used by the County in their waste composition study to allow County staff to make a more direct comparison by waste type. The special wastes identified in Table 2-4A are not included in Table 2-4B.

** Note. The City's leaf collection program delivered approximately 814 tons of leaves to the Lodi Transfer Station. However, because of an accounting system developed by San Joaquin County which requires 30 percent of transfer station diversion to be credited to the County, only 570 tons of yard waste diversion from the City's leaf collection program can be credited to Lodi.

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Table 2.5

Residential Diversion by Activity

| Material | Curbside Collection | "Drop-off" | Buy-back | Source Reduction | Total |
|-------------------------------|------------------------|------------|--------------|---------------------|--------------|
| PAPER (total) | 521 | 425 | 668 | 0 | 1,614 |
| OCC/Kraft | 0 | 45 | 302 | | 347 |
| Magazines | 0 | | | | 0 |
| Mixed Paper | 0 | | 7 | | 7 |
| Newsprint | 521 | 380 | 357 | | 1,258 |
| High Grade | 0 | | 3 | | 3 |
| Other Paper | 0 | | | | 0 |
| PLASTICS (total) | 3 | 1 | 15 | 0 | 18 |
| HDPE | | | | | 0 |
| PET | 3 | 1 | 15 | | 18 |
| Film | 0 | | | | 0 |
| Polystyrene Foam | 0 | | | | 0 |
| Other Plastic | 0 | | | | 0 |
| GLASS (total) | 270 | 0 | 475 | 0 | 745 |
| Refillable Beverage | 0 | | 1 | | 1 |
| CA Redemption Value | 270 | | 328 | | 598 |
| Other Recyclable | 0 | | 123 | | 123 |
| Other Non-Recyclable | 0 | | 23 | | 23 |
| METALS (total) | 47 | 35 | 2,093 | 0 | 2,174 |
| Aluminum Cans | 15 | 2 | 274 | | 292 |
| Other Aluminum | 0 | | 41 | | 41 |
| Bi-metal Cans | 0 | | | | 0 |
| Steel Food & Bev. Cans | 0 | | | | 0 |
| Other Ferrous | 32 | 31 | 1,690 | | 1,753 |
| Other Non-ferrous | 0 | 2 | 87 | | 88 |
| White Goods | 0 | | | | 0 |
| YARD WASTE (total) | 570 | 0 | 0 | 0 | 570 |
| Leaves and Grass | 570 | | | | 570 |
| Branches and Brush | 0 | | | | 0 |
| OTHER ORGANICS (total) | 0 | 87 | 0 | 217 | 304 |
| Food | 0 | | | | 0 |
| Rubber/Tires | 0 | 2 | | | 2 |
| Wood | 0 | 85 | | | 85 |
| Agri. Crop Residue | 0 | | | | 0 |
| Manure | 0 | | | | 0 |
| Textiles/Leather | 0 | | | | 0 |
| Diapers | 0 | | | 217 | 217 |
| Other Organics | 0 | | | | 0 |
| OTHER WASTES (total) | 0 | 0 | 0 | 0 | 0 |
| Inert Solids | 0 | | | | 0 |
| HHW | 0 | | | | 0 |
| Appliances | 0 | | | | 0 |
| SPECIAL WASTES (total) | 0 | 0 | 0 | 0 | 0 |
| Ash | 0 | | | | 0 |
| Sewage Sludge | 0 | | | | 0 |
| Industrial Sludge | 0 | | | | 0 |
| Asbestos | 0 | | | | 0 |
| Auto Shredder Waste | 0 | | | | 0 |
| Auto Bodies | 0 | | | | 0 |
| Stuffed Furn/Mattresses | 0 | | | | 0 |
| Batteries | 0 | | | | 0 |
| Used Oil | 0 | | | | 0 |
| TOTAL | 1,411 | 547 | 3,251 | 217 | 5,426 |

Note: Numbers may not appear to add due to rounding errors

Note: The City's leaf collection program delivered approximately 814 tons of leaves to the Lodi Transfer Station. However, because of an accounting system developed by San Joaquin County which requires 30 percent of transfer station diversion to be credited to the County, only 570 tons of yard waste diversion from the City's leaf collection program can be credited to Lodi.

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Table 2.6
Commercial Diversion by Activity

| Material | Collection | "Drop-off" | Buy-back | Source Reduction | Other | Total |
|-------------------------------|--------------|------------|--------------|------------------|---------------|---------------|
| PAPER (total) | 1,420 | 105 | 253 | 50 | 3 | 1,828 |
| OCC Kraft | 903 | 11 | 160 | | | 1,074 |
| Magazines | | | | | | 0 |
| Mixed Paper | | | | | | 0 |
| Newsprint | 51 | 94 | 88 | | | 699 |
| High Grade | | | 5 | 50 | | 55 |
| Other Paper | | | | | | 0 |
| PLASTICS (total) | 1 | 0 | 3 | | 0 | 4 |
| HDPE | | | | | 3 | 0 |
| PET | 0 | | 3 | | | 3 |
| Film | 0 | | | | | 0 |
| Polystyrene Foam | | | | | 0 | 0 |
| Other Plastic | | | | | | 0 |
| GLASS (total) | 52 | 0 | 114 | | 0 | 166 |
| Refillable Beverage | | | 0 | | 0 | 0 |
| CA Redemption Value | 52 | | 69 | | 0 | 121 |
| Other Recyclable | | | 39 | | 0 | 39 |
| Other Non-Recyclable | | | 6 | | 0 | 6 |
| METALS (total) | 6 | 1 | 1,534 | | 0 | 1,541 |
| Aluminum Cans | | | 121 | | 0 | 321 |
| Other Aluminum | | | 28 | | 0 | 28 |
| Bi-metal Cans | | | | | 0 | 0 |
| Steel Food & Bev Cans | | | | | 0 | 0 |
| Other Ferrous | 3 | | 1,127 | | 0 | 1,130 |
| Other Non-ferrous | 3 | | 58 | | 0 | 60 |
| White Good | | | 1 | | 0 | 1 |
| YARD WASTE (total) | 0 | 0 | 0 | | 0 | 0 |
| Leaves and Grass | | | | | 0 | 0 |
| Branches and Brush | | | | | 0 | 0 |
| OTHER ORGANICS (total) | 130 | 21 | 0 | | 0 | 151 |
| Food | 55 | | | | 0 | 55 |
| Rubber Tires | 75 | 0 | | | 0 | 75 |
| Wood | | 21 | | | 0 | 21 |
| Agri Crop Residue | | | | | 0 | 0 |
| Manure | | | | | 3 | 0 |
| Textiles/Leather | | | | | 0 | 0 |
| Diapers | | | | | 0 | 0 |
| Other Organics | | | | | 0 | 0 |
| OTHER WASTES (total) | 0 | 0 | 1,151 | | 22,500 | 23,651 |
| Inert Solids | | | 1,351 | | 22,500 | 23,851 |
| HHW | | | | | 0 | 0 |
| Appliances | | | | | 0 | 0 |
| SPECIAL WASTES (total) | 0 | 0 | 0 | | 0 | 0 |
| Ash | | | | | 0 | 0 |
| Sewage Sludge | | | | | 0 | 0 |
| Industrial Sludge | | | | | 0 | 0 |
| Asbestos | | | | | 0 | 0 |
| Auto Shedder Waste | | | | | 0 | 0 |
| Auto Bodies | | | | | 0 | 0 |
| Stuffed Furn /Mattresses | | | | | 0 | 0 |
| Batteries | | | | | 0 | 0 |
| Used Oil | | | | | 0 | 0 |
| Tires | | | | | 0 | 0 |
| TOTAL | 1,608 | 127 | 3,255 | 50 | 22,500 | 27,541 |

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Table 2.7
Industrial Diversion by Activity

| Material | Collection | "Drop-off" | Buy-back | Other | Total |
|-------------------------------|---------------|--------------|--------------|---------------|---------------|
| PAPER (total) | 953 | 124 | 171 | 0 | 1,247 |
| OCC/Kraft | 657 | 13 | 64 | | 734 |
| Magazines | | | | | 0 |
| Mixed Paper | | | | | 0 |
| Newsprint | 83 | 111 | 104 | 0 | 298 |
| High Grade | 151 | | 2 | | 152 |
| Other Paper | 83 | | | 5 | 88 |
| PLASTICS (total) | 43 | 0 | 4 | 3 | 46 |
| HDPE | | | | 3 | 3 |
| PET | | | 4 | 0 | 4 |
| Film | | | | 0 | 0 |
| Polystyrene Foam | | | | | 0 |
| Other Plastic | 43 | | | 0 | 43 |
| GLASS (total) | 13 | 0 | 148 | 0 | 161 |
| Refillable Beverage | | | 0 | 0 | 0 |
| CA Redemption Value | 13 | | 79 | 0 | 92 |
| Other Recyclable | | | 60 | 0 | 60 |
| Other Non-Recyclable | | | 9 | 0 | 9 |
| METALS (total) | 5,266 | 10 | 1,932 | 0 | 7,228 |
| Aluminum Cans | 0 | 1 | 40 | 0 | 41 |
| Other Aluminum | | | 34 | 0 | 34 |
| Bi-metal Cans | | | | 3 | 3 |
| Steel Food & Bev. Cans | 4,031 | | | 0 | 4,031 |
| Other Ferrous | 2 | 9 | 1,878 | 0 | 2,609 |
| Other Non-ferrous | 513 | 0 | | 0 | 513 |
| White Goods | | | | 0 | 0 |
| YARD WASTE (total) | 0 | 0 | 0 | 0 | 0 |
| Leaves and Grass | | | | 0 | 0 |
| Branches and Brush | | | | 0 | 0 |
| OTHER ORGANICS (total) | 11,221 | 25 | 0 | 0 | 11,246 |
| Food | 11,220 | | | 0 | 11,220 |
| Rubber/Tires | 1 | | | 0 | 1 |
| Wood | | 25 | | 0 | 25 |
| Agri. Crop Residue | | | | 0 | 0 |
| Manure | | | | 0 | 0 |
| Textiles/Leather | 0 | | | 0 | 0 |
| Diapers | | | | 0 | 0 |
| Other Organics | | | | 3 | 3 |
| OTHER WASTES (total) | 4,535 | 1,351 | 0 | 22,500 | 28,386 |
| Inert Solids | 4,535 | 1,351 | | 22,500 | 28,386 |
| HHW | | | | 0 | 0 |
| Appliances | | | | 0 | 0 |
| SPECIAL WASTES (total) | 0 | 0 | 0 | 0 | 0 |
| Ash | | | | 0 | 0 |
| Sewage Sludge | | | | 0 | 0 |
| Industrial Sludge | | | | 0 | 0 |
| Asbestos | | | | 0 | 0 |
| Auto Shredder Waste | | | | 0 | 0 |
| Auto Bodies | | | | 0 | 0 |
| Stuffed Furn./Mattresses | | | | 0 | 0 |
| Batteries | | | | 0 | 0 |
| Used Oil | | | | 0 | 0 |
| Tires | | | | 3 | 3 |
| TOTAL | 22,029 | 1,510 | 2,275 | 22,500 | 48,315 |

Table 2 - 8

**POPULATION PROJECTIONS
For the City of Lodi**

| YEAR | TOTAL POPULATION Incorporated City |
|-------------|---|
| 1990 | 51.874 |
| 1991 | 52.911 |
| 1992 | 53.970 |
| 1993 | 55.040 |
| 1994 | 56.150 |
| 1995 | 57.273 |
| 1996 | 58.419 |
| 1997 | 59.587 |
| 1998 | 60.779 |
| 1999 | 61.994 |
| 2000 | 63,234 |
| 2001 | 64.499 |
| 2002 | 65.789 |
| 2003 | 67,105 |
| 2004 | 68,447 |
| 2005 | 69,816 |
| 2006 | 71.212 |
| 2007 | 72.636 |
| 2008 | 74.089 |
| 2009 | 75,571 |
| 2010 | 77,082 |
| 2011 | 78,624 |
| 2012 | 80,196 |
| 2013 | 81,800 |
| 2014 | 83.436 |
| 2015 | 85.105 |

Table 2-9
15 Year Waste Generation Projections
Assuming Current Diversion Rates

| Waste Type | Disposal | Trans- form- ation | 1990 Diver- sion | Genera- tion | Diversion as a Percent of Wastes Generated | Disposal | Trans- form- ation | 1991 Diver- sion | Genera- tion | Diversion as a Percent of Wastes Generated |
|-----------------------|---------------|--------------------------|------------------------|-----------------|--|---------------|--------------------------|------------------------|-----------------|--|
| PAPER | 17,964 | 0 | 4689 | 22,653 | 3.10% | 18,323 | 0 | 4,783 | 23,106 | 3.10% |
| OCC/Kraft | 4,881 | 0 | 2,155 | 7,036 | 1.43% | 4,979 | 0 | 2,198 | 7,177 | 1.43% |
| Mixed Paper | 6,004 | 0 | 7 | 6,011 | 0.00% | 6,124 | 0 | 7 | 6,131 | 0.00% |
| Newsprint | 2,145 | 0 | 2,234 | 4,379 | 1.48% | 2,188 | 0 | 2,279 | 4,466 | 1.48% |
| High Grade | 484 | 0 | 210 | 694 | 0.14% | 494 | 0 | 214 | 708 | 0.14% |
| Other Paper | 4,451 | 0 | 83 | 4,534 | 0.05% | 4,540 | 0 | 85 | 4,624 | 0.05% |
| PLASTICS | 5,284 | 0 | 69 | 5,353 | 0.05% | 5,390 | 0 | 70 | 5,460 | 0.05% |
| HDPE | 410 | 0 | 3 | 413 | 0.00% | 418 | 0 | 3 | 421 | 0.00% |
| PET | 87 | 0 | 23 | 110 | 0.02% | 89 | 0 | 23 | 113 | 0.02% |
| Film | 1,876 | 0 | 0 | 1,876 | 0.00% | 1,913 | 0 | 0 | 1,913 | 0.00% |
| Other Plastic | 2,911 | 0 | 43 | 2,954 | 0.03% | 2,969 | 0 | 44 | 3,013 | 0.03% |
| GLASS | 2,017 | 0 | 1,072 | 3,089 | 0.71% | 2,057 | 0 | 1,093 | 3,151 | 0.71% |
| Refillable Beverage | 13 | 0 | 1 | 14 | 0.00% | 14 | 0 | 1 | 15 | 0.00% |
| CA Redemption Value | 437 | 0 | 811 | 1,248 | 0.54% | 446 | 0 | 827 | 1,273 | 0.54% |
| Other Recyclable | 1,277 | 0 | 222 | 1,499 | 0.15% | 1,303 | 0 | 226 | 1,529 | 0.15% |
| Other Non-Recyclable | 289 | 0 | 38 | 327 | 0.03% | 295 | 0 | 39 | 334 | 0.03% |
| METALS | 6,286 | 0 | 10,943 | 16,268 | 7.25% | 6,412 | 0 | 11,162 | 17,574 | 7.25% |
| Aluminum Cans | 161 | 0 | 654 | 815 | 0.43% | 165 | 0 | 667 | 832 | 0.43% |
| Other Ferrous | 4,108 | 0 | 9,523 | 13,631 | 6.31% | 4,190 | 0 | 9,713 | 13,903 | 6.31% |
| Other Non-ferrous | 390 | 0 | 765 | 1,155 | 0.51% | 398 | 0 | 780 | 1,178 | 0.51% |
| White Goods | 666 | 0 | 1 | 667 | 0.00% | 679 | 0 | 1 | 680 | 0.00% |
| Mixed Metals | 961 | 0 | 0 | 961 | 0.00% | 981 | 0 | 0 | 981 | 0.00% |
| YARD WASTE | 11,691 | 0 | 570 | 12,261 | 0.38% | 11,925 | 0 | 581 | 12,507 | 0.38% |
| OTHER ORGANICS | 18,475 | 2,507 | 11,702 | 30,177 | 7.75% | 18,845 | 2,557 | 11,936 | 33,338 | 7.75% |
| Food | 7,382 | 0 | 11,275 | 18,657 | 7.47% | 7,530 | 0 | 11,501 | 19,030 | 7.47% |
| Rubber/Tires | 1,103 | 226 | 78 | 1,181 | 0.05% | 1,125 | 231 | 80 | 1,435 | 0.05% |
| Wood | 5,385 | 2,281 | 131 | 5,516 | 0.09% | 5,493 | 2,327 | 134 | 7,953 | 0.09% |
| Agri. Crop Residue | 303 | 0 | 0 | 303 | 0.00% | 309 | 0 | 0 | 309 | 0.00% |
| Manure | 74 | 0 | 0 | 74 | 0.00% | 75 | 0 | 0 | 75 | 0.00% |
| Textiles/Leather | 4,222 | 0 | 1 | 4,223 | 0.00% | 4,307 | 0 | 1 | 4,308 | 0.00% |
| Other Organics* | 7 | 0 | 217 | 224 | 0.14% | 7 | 0 | 221 | 228 | 0.14% |
| OTHER WASTES | 5,513 | 0 | 52,237 | 57,750 | 34.59% | 5,623 | 0 | 53,282 | 58,905 | 34.59% |
| Inert Solids | 4,995 | 0 | 52,237 | 57,232 | 34.59% | 5,095 | 0 | 53,282 | 58,377 | 34.59% |
| Hazardous | 518 | 0 | 0 | 518 | 0.00% | 528 | 0 | 0 | 528 | 0.00% |
| TOTAL | 67,231 | 2,507 | 81,282 | 151,020 | 53.82% | 68,576 | 2,557 | 82,908 | 154,041 | 53.82% |

Table 2-9 (Continued)
15 Year Waste Generation Projections
Assuming Current Diversion Rates

| Waste Type | Disposal | Trans- form- ation | 1992 Diver- sion | Genera- tion | Diversion as a Percent of Wastes Generated | Disposal | Trans- form- ation | 1993 Diver- sion | Genera- tion | Diversion as a Percent of Wastes Generated |
|-----------------------|---------------|--------------------------|------------------------|-----------------|--|---------------|--------------------------|------------------------|-----------------|--|
| PAPER | 18,690 | 0 | 4,878 | 23,568 | 3.10% | 19,064 | 0 | 4,976 | 24,040 | 3.10% |
| OCC/Kraft | 5,078 | 0 | 2,242 | 7,320 | 1.43% | 5,180 | 0 | 2,287 | 7,467 | 1.43% |
| Mixed Paper | 6,246 | 0 | 7 | 6,254 | 0.00% | 6,371 | 0 | 7 | 6,379 | 0.00% |
| Newsprint | 2,231 | 0 | 2,324 | 4,556 | 1.48% | 2,276 | 0 | 2,371 | 4,647 | 1.48% |
| High Grade | 504 | 0 | 218 | 722 | 0.14% | 514 | 0 | 223 | 737 | 0.14% |
| Other Paper | 4,631 | 0 | 86 | 4,717 | 0.05% | 4,723 | 0 | 88 | 4,811 | 0.05% |
| PLASTICS | 5,498 | 0 | 72 | 5,570 | 0.05% | 5,608 | 0 | 73 | 5,681 | 0.05% |
| HDPE | 427 | 0 | 3 | 430 | 0.00% | 435 | 0 | 3 | 438 | 0.00% |
| PET | 91 | 0 | 24 | 115 | 0.02% | 93 | 0 | 24 | 117 | 0.02% |
| Film | 1,952 | 0 | 0 | 1,952 | 0.00% | 1,991 | 0 | 0 | 1,991 | 0.00% |
| Other Plastic | 3,029 | 0 | 45 | 3,073 | 0.03% | 3,089 | 0 | 46 | 3,135 | 0.03% |
| GLASS | 2,098 | 0 | 1,115 | 3,214 | 0.71% | 2,140 | 0 | 1,138 | 3,278 | 0.71% |
| Refillable Beverage | 14 | 0 | 1 | 15 | 0.00% | 14 | 0 | 1 | 15 | 0.00% |
| CA Redemption Value | 455 | 0 | 844 | 1,298 | 0.54% | 464 | 0 | 861 | 1,324 | 0.54% |
| Other Recyclable | 1,329 | 0 | 231 | 1,560 | 0.15% | 1,356 | 0 | 236 | 1,591 | 0.15% |
| Other Non-Recyclable | 301 | 0 | 40 | 340 | 0.03% | 307 | 0 | 40 | 347 | 0.03% |
| METALS | 6,540 | 0 | 11,385 | 17,925 | 7.25% | 6,671 | 0 | 11,613 | 18,284 | 7.25% |
| Aluminum Cans | 168 | 0 | 680 | 848 | 0.43% | 171 | 0 | 694 | 865 | 0.43% |
| Other Ferrous | 4,274 | 0 | 9,908 | 14,181 | 6.31% | 4,359 | 0 | 10,106 | 14,465 | 6.31% |
| Other Non-ferrous | 406 | 0 | 796 | 1,202 | 0.51% | 414 | 0 | 812 | 1,226 | 0.51% |
| White Goods | 692 | 0 | 1 | 694 | 0.00% | 706 | 0 | 1 | 707 | 0.00% |
| Mixed Metals | 1,000 | 0 | 0 | 1,000 | 0.00% | 1,020 | 0 | 0 | 1,020 | 0.00% |
| YARD WASTE | 12,164 | 0 | 593 | 12,757 | 0.38% | 12,407 | 0 | 605 | 13,012 | 0.38% |
| OTHER ORGANICS | 19,221 | 2,609 | 12,175 | 34,005 | 7.75% | 19,606 | 2,661 | 12,418 | 34,685 | 7.75% |
| Food | 7,680 | 0 | 11,731 | 19,411 | 7.47% | 7,834 | 0 | 11,965 | 19,799 | 7.47% |
| Rubber/Tires | 1,147 | 235 | 81 | 1,464 | 0.05% | 1,170 | 240 | 83 | 1,493 | 0.05% |
| Wood | 5,603 | 2,373 | 136 | 8,112 | 0.09% | 5,715 | 2,421 | 139 | 8,274 | 0.09% |
| Agri. Crop Residue | 315 | 0 | 0 | 315 | 0.00% | 321 | 0 | 0 | 321 | 0.00% |
| Manure | 77 | 0 | 0 | 77 | 0.00% | 78 | 0 | 0 | 78 | 0.00% |
| Textiles/Leather | 4,393 | 0 | 1 | 4,394 | 0.00% | 4,481 | 0 | 1 | 4,482 | 0.00% |
| Other Organics | 7 | 0 | 226 | 233 | 0.14% | 7 | 0 | 230 | 237 | 0.14% |
| OTHER WASTES | 5,736 | 0 | 54,347 | 60,083 | 34.59% | 5,850 | 0 | 55,434 | 61,285 | 34.59% |
| Inert Solids | 5,197 | 0 | 54,347 | 59,544 | 34.59% | 5,301 | 0 | 55,434 | 60,735 | 34.59% |
| HHW | 539 | 0 | 0 | 539 | 0.00% | 549 | 0 | 0 | 549 | 0.00% |
| TOTAL | 69,947 | 2,609 | 84,566 | 157,121 | 53.8246 | 71,346 | 2,661 | 86,257 | 160,264 | 53.82% |

| Waste Type | Disposal | Transformation | 1994 Diversion | Generation | Diversion as a Percent of Wastes Generated | Disposal | Transformation | 1995 Diversion | Generation | Diversion as a Percent of Wastes Generated |
|-----------------------|---------------|----------------|-------------------|----------------|--|---------------|----------------|-------------------|----------------|--|
| PAPER | 19,445 | 0 | 5,076 | 24,520 | 3.10% | 19,834 | 0 | 5,177 | 25,011 | 3.10% |
| OCC/Kraft | 5,283 | 0 | 2,333 | 7,616 | 1.43% | 5,389 | 0 | 2,379 | 7,768 | 1.43% |
| Mixed Paper | 6,499 | 0 | 8 | 6,506 | 0.00% | 6,629 | 0 | 8 | 6,636 | 0.00% |
| Newsprint | 2,321 | 0 | 2,418 | 4,740 | 1.48% | 2,368 | 0 | 2,467 | 4,834 | 1.48% |
| High Grade | 524 | 0 | 227 | 751 | 0.14% | 534 | 0 | 232 | 766 | 0.14% |
| Other Paper | 4,818 | 0 | 90 | 4,907 | 0.05% | 4,914 | 0 | 92 | 5,006 | 0.05% |
| PLASTICS | 5,720 | 0 | 75 | 5,795 | 0.05% | 5,834 | 0 | 76 | 5,911 | 0.05% |
| HDPE | 444 | 0 | 3 | 447 | 0.00% | 453 | 0 | 3 | 453 | 0.00% |
| PET | 95 | 0 | 25 | 120 | 0.02% | 96 | 0 | 25 | 122 | 0.02% |
| Film | 2,030 | 0 | 0 | 2,030 | 0.00% | 2,071 | 0 | 0 | 2,071 | 0.00% |
| Other Plastic | 3,151 | 0 | 47 | 3,198 | 0.03% | 3,214 | 0 | 47 | 3,262 | 0.03% |
| GLASS | 2,183 | 0 | 1,160 | 3,344 | 0.71% | 2,227 | 0 | 1,184 | 3,410 | 0.71% |
| Refillable Beverage | 15 | 0 | 1 | 16 | 0.00% | 15 | 0 | 1 | 16 | 0.00% |
| CA Redemption Value | 473 | 0 | 878 | 1,351 | 0.54% | 482 | 0 | 895 | 1,378 | 0.54% |
| Other Recyclable | 1,383 | 0 | 240 | 1,623 | 0.15% | 1,410 | 0 | 245 | 1,655 | 0.15% |
| Other Non-Recyclable | 313 | 0 | 41 | 354 | 0.03% | 319 | 0 | 42 | 361 | 0.03% |
| METALS | 6,804 | 0 | 11,845 | 18,649 | 7.25% | 6,940 | 0 | 12,082 | 19,022 | 7.25% |
| Aluminum Cans | 175 | 0 | 708 | 883 | 0.43% | 178 | 0 | 722 | 900 | 0.43% |
| Other Ferrous | 4,446 | 0 | 10,308 | 14,754 | 6.31% | 4,535 | 0 | 10,514 | 15,050 | 6.31% |
| Other Non-ferrous | 422 | 0 | 828 | 1,250 | 0.51% | 431 | 0 | 845 | 1,275 | 0.51% |
| White Goods | 720 | 0 | 1 | 722 | 0.00% | 735 | 0 | 1 | 736 | 0.00% |
| Mixed Metals | 1,041 | 0 | 0 | 1,041 | 0.00% | 1,061 | 0 | 0 | 1,061 | 0.00% |
| YARD WASTE | 12,655 | 0 | 617 | 13,272 | 0.38% | 12,908 | 0 | 629 | 13,538 | 0.38% |
| OTHER ORGANICS | 19,998 | 2,714 | 12,667 | 35,379 | 7.75% | 20,398 | 2,768 | 12,920 | 36,086 | 7.75% |
| Food | 7,990 | 0 | 12,204 | 20,195 | 7.47% | 8,150 | 0 | 12,449 | 20,599 | 7.47% |
| Rubber/Tires | 1,193 | 245 | 84 | 1,523 | 0.05% | 1,217 | 250 | 86 | 1,553 | 0.05% |
| Wood | 5,829 | 2,469 | 142 | 8,440 | 0.09% | 5,946 | 2,518 | 145 | 8,609 | 0.09% |
| Agri. Crop Residue | 327 | 0 | 0 | 327 | 0.00% | 334 | 0 | 0 | 334 | 0.00% |
| Manure | 80 | 0 | 0 | 80 | 0.00% | 82 | 0 | 0 | 82 | 0.00% |
| Textiles/Leather | 4,570 | 0 | 1 | 4,571 | 0.00% | 4,662 | 0 | 1 | 4,663 | 0.00% |
| Other Organics | 7 | 0 | 235 | 242 | 0.14% | 7 | 0 | 240 | 247 | 0.14% |
| OTHER WASTES | 5,967 | 0 | 56,543 | 62,510 | 34.59% | 6,087 | 0 | 57,674 | 63,761 | 34.59% |
| Inert Solids | 5,407 | 0 | 56,543 | 61,950 | 34.59% | 5,515 | 0 | 57,674 | 63,189 | 34.59% |
| HHW | 560 | 0 | 0 | 560 | 0.00% | 572 | 0 | 0 | 572 | 0.00% |
| TOTAL | 72,773 | 2,714 | 87,982 | 163,469 | 53.82% | 74,228 | 2,768 | 89,742 | 166,739 | 53.82% |

| Waste Type | Disposal | Trans- form- ation | 1996 Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- form- ation | 1997 Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
|-----------------------|---------------|--------------------------|------------------------|-----------------|---|---------------|--------------------------|------------------------|-----------------|---|
| PAPER | 20,231 | 0 | 5,281 | 25,511 | 3.10% | 20,635 | 0 | 5,386 | 26,021 | 3.10% |
| OCC/Kraft | 5,497 | 0 | 2,427 | 7,924 | 1.43% | 5,607 | 0 | 2,475 | 8,082 | 1.43% |
| Mixed Paper | 6,761 | 0 | 0 | 6,769 | 0.00% | 6,896 | 0 | 0 | 6,904 | 0.00% |
| Newsprint | 2,415 | 0 | 2,516 | 4,931 | 1.48% | 2,464 | 0 | 2,566 | 5,030 | 1.48% |
| High Grade | 545 | 0 | 236 | 782 | 0.14% | 556 | 0 | 241 | 797 | 0.14% |
| Other Paper | 5,012 | 0 | 93 | 5,106 | 0.05% | 5,112 | 0 | 95 | 5,208 | 0.05% |
| PLASTICS | 5,951 | 0 | 78 | 6,029 | 0.05% | 6,070 | 0 | 79 | 6,149 | 0.05% |
| HDPE | 462 | 0 | 3 | 465 | 0.00% | 471 | 0 | 3 | 475 | 0.00% |
| PET | 98 | 0 | 26 | 124 | 0.02% | 100 | 0 | 26 | 127 | 0.02% |
| Film | 2,112 | 0 | 0 | 2,112 | 0.00% | 2,155 | 0 | 0 | 2,155 | 0.00% |
| Other Plastic | 3,278 | 0 | 48 | 3,327 | 0.03% | 3,344 | 0 | 49 | 3,393 | 0.03% |
| GLASS | 2,271 | 0 | 1,207 | 3,479 | 0.71% | 2,317 | 0 | 1,231 | 3,548 | 0.71% |
| Refillable Beverage | 15 | 0 | 1 | 16 | 0.00% | 15 | 0 | 1 | 17 | 0.00% |
| CA Redemption Value | 492 | 0 | 913 | 1,405 | 0.54% | 502 | 0 | 932 | 1,434 | 0.54% |
| Other Recyclable | 1,439 | 0 | 250 | 1,689 | 0.15% | 1,467 | 0 | 255 | 1,722 | 0.15% |
| Other Non-Recyclable | 326 | 0 | 43 | 368 | 0.03% | 332 | 0 | 44 | 376 | 0.03% |
| METALS | 7,079 | 0 | 12,324 | 19,403 | 7.25% | 7,221 | 0 | 12,570 | 19,791 | 7.25% |
| Aluminum Cans | 182 | 0 | 737 | 918 | 0.43% | 185 | 0 | 751 | 937 | 0.43% |
| Other Ferrous | 4,626 | 0 | 10,724 | 15,351 | 6.31% | 4,719 | 0 | 10,939 | 15,658 | 6.31% |
| Other Non-ferrous | 439 | 0 | 862 | 1,301 | 0.51% | 448 | 0 | 879 | 1,327 | 0.51% |
| White Goods | 750 | 0 | 1 | 751 | 0.00% | 765 | 0 | 1 | 766 | 0.00% |
| Mixed Metals | 1,083 | 0 | 0 | 1,083 | 0.00% | 1,104 | 0 | 0 | 1,104 | 0.00% |
| YARD WASTE | 13,166 | 0 | 642 | 13,808 | 0.38% | 13,430 | 0 | 655 | 14,085 | 0.38% |
| OTHER ORGANICS | 20,806 | 2,824 | 13,178 | 36,808 | 7.75% | 21,222 | 2,880 | 13,442 | 37,544 | 7.75% |
| Food | 8,313 | 0 | 12,697 | 21,011 | 7.47% | 8,480 | 0 | 12,951 | 21,431 | 7.47% |
| Rubber/Tires | 1,242 | 255 | 88 | 1,584 | 0.05% | 1,267 | 260 | 90 | 1,616 | 0.05% |
| Wood | 6,065 | 2,569 | 148 | 8,781 | 0.09% | 6,186 | 2,620 | 150 | 8,957 | 0.09% |
| Manure | 341 | 0 | 0 | 341 | 0.00% | 348 | 0 | 0 | 348 | 0.00% |
| | 83 | 0 | 0 | 83 | 0.00% | 85 | 0 | 0 | 85 | 0.00% |
| | 4,755 | 0 | 1 | 4,756 | 0.00% | 4,850 | 0 | 1 | 4,851 | 0.00% |
| Other Organics | 8 | 0 | 244 | 252 | 0.14% | 8 | 0 | 249 | 257 | 0.14% |
| OTHER WASTES | 6,208 | 0 | 58,827 | 65,036 | 34.59% | 6,333 | 0 | 60,004 | 66,337 | 34.59% |
| Inert Solids | 5,625 | 0 | 58,827 | 64,453 | 34.59% | 5,738 | 0 | 60,004 | 65,742 | 34.59% |
| HHW | 583 | 0 | 0 | 583 | 0.00% | 595 | 0 | 0 | 595 | 0.00% |
| TOTAL | 75,713 | 2,824 | 91,537 | 170,073 | 53.82% | 77,227 | 2,880 | 93,367 | 173,475 | 53.82% |

Table 2-9 (Continued)
15 Year Waste Generation Projections
Assuming Current Diversion Rates

| Waste Type | 1998 | 1999 | 1998 | 1999 | 1998 | 1999 | 1998 | 1999 | 1998 | 1999 |
|-----------------------|---------------|--------------------------|----------------|-----------------|---|---------------|--------------------------|----------------|-----------------|---|
| | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
| PAPER | 21,048 | 0 | 5,494 | 26,542 | 3.10% | 21,469 | 0 | 5,604 | 27,073 | 3.10% |
| OCC/Kraft | 5,719 | 0 | 2,525 | 8,244 | 1.43% | 5,833 | 0 | 2,575 | 8,409 | 1.43% |
| Mixed Paper | 7,034 | 0 | 8 | 7,043 | 0.00% | 7,175 | 0 | 8 | 7,183 | 0.00% |
| Newsprint | 2,513 | 0 | 2,617 | 5,130 | 1.48% | 2,563 | 0 | 2,670 | 5,233 | 1.48% |
| Other Paper | 567 | 0 | 246 | 813 | 0.14% | 579 | 0 | 251 | 829 | 0.14% |
| PLASTICS | 5,215 | 0 | 97 | 5,312 | 0.05% | 5,319 | 0 | 99 | 5,418 | 0.05% |
| PLASTICS | 6,191 | 0 | 81 | 6,272 | 0.05% | 6,315 | 0 | 82 | 6,398 | 0.05% |
| PET | 481 | 0 | 4 | 484 | 0.00% | 490 | 0 | 4 | 494 | 0.00% |
| Film | 102 | 0 | 27 | 129 | 0.02% | 104 | 0 | 27 | 132 | 0.02% |
| Other Plastic | 2,198 | 0 | 0 | 2,198 | 0.00% | 2,242 | 0 | 0 | 2,242 | 0.00% |
| | 3,411 | 0 | 50 | 3,461 | 0.03% | 3,479 | 0 | 51 | 3,530 | 0.03% |
| GLASS | 2,363 | 0 | 1,256 | 3,619 | 0.71% | 2,410 | 0 | 1,281 | 3,692 | 0.71% |
| Refillable Beverage | 16 | 0 | 1 | 17 | 0.00% | 16 | 0 | 1 | 17 | 0.00% |
| CA Redemption Value | 512 | 0 | 950 | 1,462 | 0.54% | 522 | 0 | 969 | 1,491 | 0.54% |
| Other Recyclable | 1,497 | 0 | 260 | 1,757 | 0.15% | 1,527 | 0 | 265 | 1,792 | 0.15% |
| Other Non-Recyclable | 339 | 0 | 45 | 383 | 0.03% | 345 | 0 | 45 | 391 | 0.03% |
| METALS | 7,365 | 0 | 12,821 | 20,187 | 7.25% | 7,512 | 0 | 13,078 | 20,590 | 7.25% |
| Aluminum Cans | 189 | 0 | 766 | 955 | 0.43% | 193 | 0 | 782 | 974 | 0.43% |
| Other Ferrous | 4,813 | 0 | 11,158 | 15,971 | 6.31% | 4,909 | 0 | 11,381 | 16,290 | 6.31% |
| Other Non-ferrous | 457 | 0 | 896 | 1,353 | 0.51% | 466 | 0 | 914 | 1,380 | 0.51% |
| White Goods | 780 | 0 | 1 | 781 | 0.00% | 795 | 0 | 1 | 797 | 0.00% |
| Mixed Metals | 1,126 | 0 | 0 | 1,126 | 0.00% | 1,149 | 0 | 0 | 1,149 | 0.00% |
| YARD WASTE | 13,698 | 0 | 668 | 14,366 | 0.38% | 13,972 | 0 | 681 | 14,654 | 0.38% |
| OTHER ORGANICS | 21,646 | 2,938 | 13,711 | 38,295 | 7.75% | 22,079 | 2,996 | 13,985 | 39,061 | 7.75% |
| Food | 8,649 | 0 | 13,210 | 21,860 | 7.47% | 8,822 | 0 | 13,475 | 22,297 | 7.47% |
| Rubber/Tires | 1,292 | 265 | 91 | 1,648 | 0.05% | 1,318 | 270 | 93 | 1,681 | 0.05% |
| Wood | 6,310 | 2,673 | 153 | 9,136 | 0.09% | 6,436 | 2,726 | 157 | 9,318 | 0.09% |
| Agri. Crop Residue | 354 | 0 | 0 | 354 | 0.00% | 362 | 0 | 0 | 362 | 0.00% |
| Manure | 87 | 0 | 0 | 87 | 0.00% | 88 | 0 | 0 | 88 | 0.00% |
| Textiles/Leather | 4,947 | 0 | 1 | 4,948 | 0.00% | 5,046 | 0 | 1 | 5,047 | 0.00% |
| Other Organics | 8 | 0 | 254 | 262 | 0.14% | 8 | 0 | 259 | 267 | 0.14% |
| OTHER WASTES | 6,459 | 0 | 61,204 | 67,663 | 34.59% | 6,588 | 0 | 62,428 | 69,017 | 34.59% |
| Inert Solids | 853 | 0 | 61,204 | 67,057 | 34.59% | 5,970 | 0 | 62,428 | 68,398 | 34.59% |
| HHW | 607 | 0 | 0 | 607 | 0.00% | 619 | 0 | 0 | 619 | 0.00% |
| TOTAL | 78,772 | 2,938 | 95,235 | 176,944 | 53.82% | 80,347 | 2,996 | 97,140 | 180,483 | 53.82% |

Table 2-9 (Continued)
15 Year Waste Generation Projections
Assuming Current Diversion Rates

| Waste Type | Disposal | Transformation | 2000 Diversion | 2000 Generation | 2000 Diversion as a % of Waste Generated | Disposal | Transformation | 2001 Diversion | 2001 Generation | 2001 Diversion as a % of Waste Generated |
|-----------------------|---------------|----------------|-------------------|--------------------|--|---------------|----------------|-------------------|--------------------|--|
| PAPER | 21,898 | 0 | 5,716 | 27,614 | 3.10% | 22,336 | 0 | 5,830 | 28,166 | 3.10% |
| OCC/Kraft | 5,950 | 0 | 2,627 | 8,577 | 1.43% | 6,069 | 0 | 2,679 | 8,748 | 1.43% |
| Mixed Paper | 7,319 | 0 | 9 | 7,327 | 0.00% | 7,465 | 0 | 9 | 7,474 | 0.00% |
| Newsprint | 2,614 | 0 | 2,723 | 5,338 | 1.48% | 2,667 | 0 | 2,778 | 5,444 | 1.48% |
| High Grade | 590 | 0 | 256 | 846 | 0.14% | 602 | 0 | 261 | 863 | 0.14% |
| Other Paper | 5,425 | 0 | 101 | 5,527 | 0.05% | 5,534 | 0 | 103 | 5,637 | 0.05% |
| PLASTICS | 6,442 | 0 | 84 | 6,526 | 0.05% | 6,570 | 0 | 86 | 6,656 | 0.05% |
| HDPE | 500 | 0 | | 504 | 0.00% | 510 | 0 | 4 | 514 | 0.00% |
| PET | 107 | 0 | 29 | 135 | 0.02% | 109 | 0 | 29 | 137 | 0.02% |
| Film | 2,287 | 0 | 0 | 2,287 | 0.00% | 2,332 | 0 | 0 | 2,332 | 0.00% |
| Other Plastic | 3,549 | 0 | 52 | 3,601 | 0.03% | 3,620 | 0 | 53 | 3,673 | 0.03% |
| GLASS | 2,459 | 0 | 1,307 | 3,765 | 0.71% | 2,508 | 0 | 1,333 | 3,841 | 0.71% |
| Refillable Beverage | 16 | 0 | 1 | 18 | 0.00% | 17 | 0 | 1 | 18 | 0.00% |
| CA Redemption Value | 533 | 0 | 989 | 1,521 | 0.54% | 543 | 0 | 1,008 | 1,552 | 0.54% |
| Other Recyclable | 1,557 | 0 | 271 | 1,828 | 0.15% | 1,588 | 0 | 276 | 1,864 | 0.15% |
| Other Non-Recyclable | 352 | 0 | 46 | 399 | 0.03% | 359 | 0 | 47 | 407 | 0.03% |
| METALS | 7,663 | 0 | 13,339 | 21,002 | 7.25% | 7,816 | 0 | 13,606 | 21,422 | 7.25% |
| Aluminum Cans | 197 | 0 | 797 | 994 | 0.43% | 201 | 0 | 813 | 1,014 | 0.43% |
| Other Ferrous | 5,007 | 0 | 11,608 | 16,616 | 6.31% | 5,108 | 0 | 11,841 | 16,948 | 6.31% |
| Other Non-ferrous | 475 | 0 | 933 | 1,408 | 0.51% | 485 | 0 | 951 | 1,436 | 0.51% |
| White Goods | 811 | 0 | 1 | 813 | 0.00% | 828 | 0 | 1 | 829 | 0.00% |
| Mixed Metals | 1,172 | 0 | 0 | 1,172 | 0.00% | 1,195 | 0 | 0 | 1,195 | 0.00% |
| YARD WASTE | 14,252 | 0 | 695 | 14,947 | 0.38% | 14,537 | 0 | 709 | 15,246 | 0.38% |
| OTHER ORGANICS | 22,521 | 3,056 | 14,265 | 39,842 | 7.75% | 22,971 | 3,117 | 14,550 | 40,639 | 7.75% |
| Food | 8,999 | 0 | 13,744 | 22,743 | 7.47% | 9,179 | 0 | 14,019 | 23,198 | 7.47% |
| Rubber/Tires | 1,344 | 276 | 95 | 1,715 | 0.05% | 1,371 | 281 | 97 | 1,749 | 0.05% |
| Wood | 6,565 | 2,781 | 160 | 9,505 | 0.09% | 6,696 | 2,836 | 163 | 9,695 | 0.09% |
| Agri. Crop Residue | 369 | 0 | 0 | 369 | 0.00% | 376 | 0 | 0 | 376 | 0.00% |
| Manure | 90 | 0 | 0 | 90 | 0.00% | 92 | 0 | 0 | 92 | 0.00% |
| Textiles/Leather | 5,147 | 0 | 1 | 5,148 | 0.00% | 5,250 | 0 | 1 | 5,251 | 0.00% |
| Other Organics | 8 | 0 | 265 | 273 | 0.14% | 8 | 0 | 270 | 278 | 0.14% |
| OTHER WASTES | 6,720 | 0 | 63,677 | 70,397 | 34.59% | 6,855 | 0 | 64,950 | 71,805 | 34.59% |
| Inert Solids | 6,089 | 0 | 63,677 | 69,766 | 34.59% | 6,211 | 0 | 64,950 | 71,161 | 34.59% |
| HHW | 631 | 0 | 0 | 631 | 0.00% | 644 | 0 | 0 | 644 | 0.00% |
| TOTAL | 81,954 | 3,056 | 99,082 | 184,093 | 53.82% | 83,593 | 3,117 | 101,064 | 187,775 | 53.82% |

Table 2-9 (Continued)
15 Year Waste Generation Projections
Assuming Current Diversion Rates

| Waste Type | Disposal | Trans- form- ation | 2002 Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- form- ation | 2003 Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
|-----------------------|---------------|--------------------------|------------------------|-----------------|---|---------------|--------------------------|------------------------|-----------------|---|
| PAPER | 22,783 | 0 | 5,947 | 28,730 | 3.10% | 23,239 | 0 | 6,066 | 29,304 | 3.10% |
| OCC/Kraft | 6,190 | 0 | 2,733 | 8,923 | 1.43% | 6,314 | 0 | 2,788 | 9,102 | 1.43% |
| Mixed Paper | 7,614 | 0 | 9 | 7,623 | 0.00% | 7,766 | 0 | 9 | 7,776 | 0.00% |
| Newsprint | 2,720 | 0 | 2,833 | 5,553 | 1.48% | 2,774 | 0 | 2,890 | 5,664 | 1.48% |
| High Grade | 614 | 0 | 266 | 880 | 0.14% | 626 | 0 | 272 | 898 | 0.14% |
| Other Paper | 5,645 | 0 | 105 | 5,750 | 0.05% | 5,757 | 0 | 107 | 5,865 | 0.05% |
| PLASTICS | 6,702 | 0 | 88 | 6,789 | 0.05% | 6,836 | 0 | 89 | 6,925 | 0.05% |
| HDPE | 520 | 0 | 4 | 524 | 0.00% | 531 | 0 | 4 | 534 | 0.00% |
| PET | 111 | 0 | 29 | 140 | 0.02% | 113 | 0 | 30 | 143 | 0.02% |
| Film | 2,379 | 0 | 0 | 2,379 | 0.00% | 2,426 | 0 | 0 | 2,426 | 0.00% |
| Other Plastic | 3,692 | 0 | 55 | 3,747 | 0.03% | 3,766 | 0 | 56 | 3,821 | 0.03% |
| GLASS | 2,558 | 0 | 1,360 | 3,918 | 0.71% | 2,609 | 0 | 1,387 | 3,996 | 0.71% |
| Refillable Beverage | 17 | 0 | 1 | 18 | 0.00% | 17 | 0 | 1 | 19 | 0.00% |
| CA Redemption Value | 554 | 0 | 1,029 | 1,583 | 0.54% | 565 | 0 | 1,049 | 1,614 | 0.54% |
| Other Recyclable | 1,620 | 0 | 282 | 1,902 | 0.15% | 1,652 | 0 | 287 | 1,940 | 0.15% |
| Other Non-Recyclable | 367 | 0 | 48 | 415 | 0.03% | 374 | 0 | 49 | 423 | 0.03% |
| METALS | 7,972 | 0 | 13,878 | 21,851 | 7.25% | 8,132 | 0 | 14,156 | 22,288 | 7.25% |
| Aluminum Cans | 205 | 0 | 829 | 1,034 | 0.43% | 209 | 0 | 846 | 1,055 | 0.43% |
| Other Ferrous | 5,210 | 0 | 12,077 | 17,287 | 6.31% | 5,314 | 0 | 12,319 | 17,633 | 6.31% |
| Other Non-ferrous | 495 | 0 | 970 | 1,465 | 0.51% | 504 | 0 | 990 | 1,494 | 0.51% |
| White Goods | 844 | 0 | 1 | 845 | 0.00% | 861 | 0 | 1 | 862 | 0.00% |
| Mixed Metals | 1,219 | 0 | 0 | 1,219 | 0.00% | 1,244 | 0 | 0 | 1,244 | 0.00% |
| YARD WASTE | 14,828 | 0 | 723 | 15,551 | 0.38% | 15,124 | 0 | 737 | 15,862 | 0.38% |
| OTHER ORGANICS | 23,431 | 3,180 | 14,841 | 41,452 | 7.75% | 23,899 | 3,243 | 15,138 | 42,281 | 7.75% |
| Food | 9,362 | 0 | 14,299 | 23,662 | 7.47% | 9,549 | 0 | 14,585 | 24,135 | 7.47% |
| Rubber/Tires | 1,398 | 287 | 99 | 1,784 | 0.05% | 1,426 | 293 | 101 | 1,820 | 0.05% |
| Wood | 6,830 | 2,893 | 166 | 9,889 | 0.09% | 6,966 | 2,951 | 169 | 10,087 | 0.09% |
| Agri. Crop Residue | 384 | 0 | 0 | 384 | 0.00% | 391 | 0 | 0 | 391 | 0.00% |
| Manure | 94 | 0 | 0 | 94 | 0.00% | 96 | 0 | 0 | 96 | 0.00% |
| Textiles/Leather | 5,355 | 0 | 1 | 5,356 | 0.00% | 5,462 | 0 | 1 | 5,463 | 0.00% |
| Other Organics | 9 | 0 | 275 | 284 | 0.14% | 9 | 0 | 281 | 289 | 0.14% |
| OTHER WASTES | 6,992 | 0 | 66,249 | 73,241 | 34.59% | 7,132 | 0 | 67,574 | 74,706 | 34.59% |
| Inert Solids | 6,335 | 0 | 66,249 | 72,584 | 34.59% | 6,462 | 0 | 67,574 | 74,036 | 34.59% |
| HHW | 657 | 0 | 0 | 657 | 0.00% | 670 | 0 | 0 | 670 | 0.00% |
| TOTAL | 85,265 | 3,180 | 103,085 | 191,530 | 53.82% | 86,970 | 3,243 | 105,147 | 195,361 | 53.82% |

| Waste Type | Disposal | Trans- form- ation | 2004 Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- form- ation | 2005 Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
|-----------------------|---------------|--------------------------|------------------------|-----------------|---|---------------|--------------------------|------------------------|-----------------|---|
| PAPER | 23,703 | 0 | 6,187 | 29,890 | 3.10% | 24,177 | 0 | 6,311 | 30,488 | 3.10% |
| OCC/Kraft | 6,440 | 0 | 2,843 | 9,284 | 1.43% | 6,569 | 0 | 2,900 | 9,469 | 1.43% |
| Mixed Paper | 7,922 | 0 | 9 | 7,931 | 0.00% | 8,080 | 0 | 9 | 8,090 | 0.00% |
| Newsprint | 2,830 | 0 | 2,948 | 5,778 | 1.48% | 2,886 | 0 | 3,007 | 5,893 | 1.48% |
| High Grade | 639 | 0 | 277 | 916 | 0.14% | 651 | 0 | 283 | 934 | 0.14% |
| Other Paper | 5,873 | 0 | 110 | 5,982 | 0.05% | 5,990 | 0 | 112 | 6,102 | 0.05% |
| PLASTICS | 6,973 | 0 | 91 | 7,064 | 0.05% | 7,112 | 0 | 93 | 7,205 | 0.05% |
| HDPE | 541 | 0 | 4 | 545 | 0.00% | 552 | 0 | 4 | 556 | 0.00% |
| PET | 115 | 0 | 30 | 146 | 0.02% | 118 | 0 | 31 | 149 | 0.02% |
| Film | 2,475 | 0 | 0 | 2,475 | 0.00% | 2,525 | 0 | 0 | 2,525 | 0.00% |
| Other Plastic | 3,841 | 0 | 57 | 3,898 | 0.03% | 3,918 | 0 | 58 | 3,976 | 0.03% |
| GLASS | 2,661 | 0 | 1,414 | 4,076 | 0.71% | 2,715 | 0 | 1,443 | 4,157 | 0.71% |
| Refillable Beverage | 18 | 0 | 1 | 19 | 0.00% | 18 | 0 | 1 | 19 | 0.00% |
| CA Redemption Value | 577 | 0 | 1,070 | 1,647 | 0.54% | 588 | 0 | 1,091 | 1,680 | 0.54% |
| Other Recyclable | 1,685 | 0 | 293 | 1,978 | 0.15% | 1,719 | 0 | 299 | 2,018 | 0.15% |
| Other Non-Recyclable | 381 | 0 | 50 | 432 | 0.03% | 389 | 0 | 51 | 440 | 0.03% |
| METALS | 8,294 | 0 | 14,439 | 22,733 | 7.25% | 8,450 | 0 | 14,728 | 23,188 | 7.25% |
| Aluminum Cans | 213 | 0 | 863 | 1,076 | 0.43% | 217 | 0 | 880 | 1,097 | 0.43% |
| Other Ferrous | 5,420 | 0 | 12,565 | 17,986 | 6.31% | 5,529 | 0 | 12,817 | 18,345 | 6.31% |
| Other Non-ferrous | 515 | 0 | 1,009 | 1,524 | 0.51% | 525 | 0 | 1,030 | 1,554 | 0.51% |
| White Goods | 878 | 0 | 1 | 880 | 0.00% | 896 | 0 | 1 | 897 | 0.00% |
| Mixed Metals | 1,269 | 0 | 0 | 1,269 | 0.00% | 1,294 | 0 | 0 | 1,294 | 0.00% |
| YARD WASTE | 15,427 | 0 | 752 | 16,179 | 0.38% | 15,735 | 0 | 767 | 16,502 | 0.38% |
| OTHER ORGANICS | 24,377 | 3,308 | 15,441 | 43,126 | 7.75% | 24,865 | 3,374 | 15,749 | 43,989 | 7.75% |
| Food | 9,740 | 0 | 14,877 | 24,617 | 7.47% | 9,935 | 0 | 15,175 | 25,110 | 7.47% |
| Rubber/Tires | 1,455 | 299 | 103 | 1,856 | 0.05% | 1,484 | 305 | 105 | 1,893 | 0.05% |
| Wood | 7,106 | 3,010 | 173 | 10,288 | 0.09% | 7,248 | 3,070 | 176 | 10,494 | 0.09% |
| | 399 | 0 | 0 | 399 | 0.00% | 407 | 0 | 0 | 407 | 0.00% |
| Manure | 98 | 0 | 0 | 98 | 0.00% | 100 | 0 | 0 | 100 | 0.00% |
| Textiles/Leather | 5,571 | 0 | 1 | 5,572 | 0.00% | 5,682 | 0 | 1 | 5,684 | 0.00% |
| Other Organics | 9 | 0 | 286 | 295 | 0.14% | 9 | 0 | 292 | 301 | 0.14% |
| OTHER WASTES | 7,274 | 0 | 68,926 | 76,200 | 34.59% | 7,420 | 0 | 70,304 | 77,724 | 34.59% |
| Inert Solids | 6,591 | 0 | 68,926 | 75,517 | 34.59% | 6,723 | 0 | 70,304 | 77,027 | 34.59% |
| HHW | 683 | 0 | 0 | 683 | 0.00% | 697 | 0 | 0 | 697 | 0.00% |
| TOTAL | 88,710 | 3,308 | 107,250 | 199,268 | 53.82% | 90,484 | 3,374 | 109,395 | 203,253 | 53.82% |

Table 2-10
15 Year Waste Generation Projections
Assuming Assuming AB 939 Goals Can Be Achieved

| Waste Type | Calendar Year 1990 | | | | | Calendar Year 1991 | | | | |
|-----------------------|--------------------|--------------------------|----------------|-----------------|--|--------------------|--------------------------|----------------|-----------------|--|
| | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a Percent of Wastes Generated | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a Percent of Wastes Generated |
| PAPER | 17,964 | 0 | 4689 | 22,653 | 3.10% | 18,323 | 0 | 4,783 | 23,106 | 3.10% |
| OCC/Kraft | 4,881 | 0 | 2,155 | 7,036 | 1.43% | 4,979 | 0 | 2,198 | 7,177 | 1.43% |
| Mixed Paper | 6,004 | 0 | 7 | 6,011 | 0.00% | 6,124 | 0 | 7 | 6,131 | 0.00% |
| Newsprint | 2,145 | 0 | 2,234 | 4,379 | 1.48% | 2,188 | 0 | 2,279 | 4,466 | 1.48% |
| Other Paper | 4,451 | 0 | 83 | 4,534 | 0.05% | 4,540 | 0 | 85 | 4,624 | 0.05% |
| PLASTICS | 5,284 | 0 | 69 | 5,353 | 0.05% | 5,390 | 0 | 70 | 5,460 | 0.05% |
| HDPE | 410 | 0 | 3 | 413 | 0.00% | 418 | 0 | 3 | 421 | 0.00% |
| PET | 87 | 0 | 23 | 110 | 0.02% | 89 | 0 | 23 | 113 | 0.02% |
| Film | 1,876 | 0 | 0 | 1,876 | 0.00% | 1,913 | 0 | 0 | 1,913 | 0.00% |
| Other Plastic | 2,911 | 0 | 43 | 2,954 | 0.03% | 2,969 | 0 | 44 | 3,013 | 0.03% |
| GLASS | 2,017 | 0 | 1,072 | 3,089 | 0.71% | 2,057 | 0 | 1,093 | 3,151 | 0.71% |
| Refillable Beverage | 13 | 0 | 1 | 14 | 0.00% | 14 | 0 | 1 | 15 | 0.00% |
| CA Redemption Value | 437 | 0 | 811 | 1,248 | 0.54% | 446 | 0 | 827 | 1,273 | 0.54% |
| Other Recyclable | 1,277 | 0 | 222 | 1,499 | 0.15% | 1,303 | 0 | 226 | 1,529 | 0.15% |
| Other Non-Recyclable | 289 | 0 | 38 | 327 | 0.03% | 295 | 0 | 39 | 334 | 0.03% |
| METALS | 6,286 | 0 | 10,943 | 16,268 | 7.25% | 6,412 | 0 | 11,162 | 17,574 | 7.25% |
| Aluminum Cans | 161 | 0 | 654 | 815 | 0.43% | 165 | 0 | 667 | 832 | 0.43% |
| Other Ferrous | 4,108 | 0 | 9,523 | 13,631 | 6.31% | 4,190 | 0 | 9,713 | 13,903 | 6.31% |
| Other Non-ferrous | 390 | 0 | 765 | 1,155 | 0.51% | 398 | 0 | 780 | 1,178 | 0.51% |
| White Goods | 666 | 0 | 1 | 667 | 0.00% | 679 | 0 | 1 | 680 | 0.00% |
| Mixed Metals | 961 | 0 | 0 | 961 | 0.00% | 981 | 0 | 0 | 981 | 0.00% |
| YARD WASTE | 11,691 | 0 | 570 | 12,261 | 0.38% | 11,925 | 0 | 581 | 12,507 | 0.38% |
| OTHER ORGANICS | 18,475 | 2,507 | 11,702 | 30,177 | 7.75% | 18,845 | 2,557 | 11,936 | 33,338 | 7.75% |
| Food | 7,382 | 0 | 11,275 | 18,657 | 7.47% | 7,530 | 0 | 11,501 | 19,030 | 7.47% |
| Rubber/Tires | 1,103 | 226 | 78 | 1,181 | 0.05% | 1,125 | 231 | 80 | 1,435 | 0.05% |
| Wood | 5,385 | 2,281 | 131 | 5,516 | 0.09% | 5,493 | 2,327 | 134 | 7,353 | 0.09% |
| Agri. Crop Residue | 303 | 0 | 0 | 303 | 0.00% | 309 | 0 | 0 | 309 | 0.00% |
| Manure | 74 | 0 | 0 | 74 | 0.00% | 75 | 0 | 0 | 75 | 0.00% |
| Textiles/Leather | 4,222 | 0 | 1 | 4,223 | 0.00% | 4,307 | 0 | 1 | 4,308 | 0.00% |
| Other Organics | 7 | 0 | 217 | 224 | 0.14% | 7 | 0 | 221 | 228 | 0.14% |
| OTHER WASTES | 5,513 | 0 | 52,237 | 57,750 | 34.59% | 5,623 | 0 | 53,282 | 58,905 | 34.59% |
| Inert Solids | 499 | 0 | 52,237 | 57,232 | 34.59% | 5,095 | 0 | 53,282 | 58,377 | 34.59% |
| Hazardous | 518 | 0 | 0 | 518 | 0.00% | 528 | 0 | 0 | 528 | 0.00% |
| | 0 | | | | | | | | | |
| TOTAL | 67,231 | 2,507 | 81,282 | 151,020 | 53.82% | 68,576 | 2,557 | 82,908 | 154,041 | 53.82% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendar years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.

| Waste Type | Calendar Year 1992 | | | | | Calendar Year 1993 | | | | |
|----------------------|--------------------|----------------|-----------|------------|--|--------------------|----------------|-----------|------------|--|
| | Disposal | Transformation | Diversion | Generation | Diversion as a Percent of Wastes Generated | Disposal | Transformation | Diversion | Generation | Diversion as a Percent of Wastes Generated |
| PAPER | 18,690 | 0 | 4,878 | 23,568 | 3.10% | 19,064 | 0 | 4,976 | 24,040 | 3.10% |
| OCC/Kraft | 5,078 | 0 | 2,242 | 7,320 | 1.43% | 5,180 | 0 | 2,287 | 7,467 | 1.43% |
| Mixed Paper | 6,246 | 0 | 7 | 6,254 | 0.00% | 6,371 | 0 | 7 | 6,379 | 0.00% |
| Newsprint | 2,231 | 0 | 2,324 | 4,556 | 1.48% | 2,276 | 0 | 2,371 | 4,647 | 1.48% |
| Hq h Grade | 504 | 0 | 218 | 722 | 0.14% | 514 | 0 | 223 | 737 | 0.14% |
| Other Paper | 4,631 | 0 | 86 | 4,717 | 0.05% | 4,723 | 0 | 88 | 4,811 | 0.05% |
| PLASTICS | 5,498 | 0 | 72 | 5,570 | 0.05% | 5,608 | 0 | 73 | 5,681 | 0.05% |
| HDPE | 427 | 0 | 3 | 430 | 0.00% | 435 | 0 | 3 | 438 | 0.00% |
| PET | 91 | 0 | 24 | 115 | 0.02% | 93 | 0 | 24 | 117 | 0.02% |
| Film | 1,952 | 0 | 0 | 1,952 | 0.00% | 1,991 | 0 | 0 | 1,991 | 0.00% |
| Other Plastic | 3,029 | 0 | 45 | 3,073 | 0.03% | 3,089 | 0 | 46 | 3,135 | 0.03% |
| GLASS | 2,098 | 0 | 1,115 | 3,214 | 0.71% | 2,140 | 0 | 1,138 | 3,278 | 0.71% |
| Refillable Beverage | 14 | 0 | 1 | 15 | 0.00% | 14 | 0 | 1 | 15 | 0.00% |
| CA Redemption Value | 455 | 0 | 844 | 1,298 | 0.54% | 464 | 0 | 861 | 1,324 | 0.54% |
| Other Recyclable | 1,329 | 0 | 231 | 1,560 | 0.15% | 1,356 | 0 | 236 | 1,591 | 0.15% |
| Other Non-Recyclable | 301 | 0 | 40 | 340 | 0.03% | 307 | 0 | 40 | 347 | 0.03% |
| METALS | 6,540 | 0 | 11,385 | 17,925 | 7.25% | 6,671 | 0 | 11,613 | 18,284 | 7.25% |
| Aluminum Cans | 168 | 0 | 680 | 848 | 0.43% | 171 | 0 | 694 | 865 | 0.43% |
| Other Ferrous | 4,274 | 0 | 9,908 | 14,181 | 6.31% | 4,359 | 0 | 10,106 | 14,465 | 6.31% |
| Other Non-ferrous | 406 | 0 | 796 | 1,202 | 0.51% | 414 | 0 | 106 | 4,465 | 6.31% |
| White Goods | 692 | 0 | 1 | 694 | 0.00% | 706 | 0 | 812 | 1,226 | 0.00% |
| Mixed Metals | 1,000 | 0 | 0 | 1,000 | 0.00% | 1,020 | 0 | 0 | 1,020 | 0.00% |
| YARD WASTE | 12,164 | 0 | 593 | 12,757 | 0.38% | 12,407 | 0 | 605 | 13,012 | 0% |
| OTHER ORGANICS | 19,221 | 2,609 | 12,175 | 34,005 | 7.75% | 19,606 | 2,661 | 12,418 | 34,685 | 7.75% |
| Food | 7,680 | 0 | 11,731 | 19,411 | 7.47% | 7,834 | 0 | 11,965 | 19,799 | 7.47% |
| Rubber/Tires | 1,147 | 235 | 81 | 1,464 | 0.05% | 1,170 | 240 | 83 | 1,493 | 0.05% |
| Wood | 5,603 | 2,373 | 136 | 8,112 | 0.09% | 5,715 | 2,421 | 139 | 8,274 | 0.09% |
| Agn. Crop Residue | 315 | 0 | 0 | 315 | 0.00% | 321 | 0 | 0 | 321 | 0.00% |
| Manure | 77 | 0 | 0 | 77 | 0.00% | 78 | 0 | 0 | 78 | 0.00% |
| Textiles/Leather | 4,393 | 0 | 1 | 4,394 | 0.00% | 4,481 | 0 | 1 | 4,482 | 0.00% |
| Other Organics | 7 | 0 | 226 | 233 | 0.14% | 7 | 0 | 230 | 237 | 0.14% |
| OTHER WASTES | 5,736 | 0 | 54,347 | 60,083 | 34.59% | 5,850 | 0 | 55,434 | 61,285 | 34.59% |
| Inert Solids | 5,197 | 0 | 54,347 | 59,544 | 34.59% | 5,301 | 0 | 55,434 | 60,735 | 34.59% |
| Hazardous | 539 | 0 | 0 | 539 | 0.00% | 549 | 0 | 0 | 549 | 0.00% |
| TOTAL | 69,947 | 2,609 | 84,566 | 157,121 | 53.82% | 71,346 | 2,661 | 86,257 | 160,264 | 53.82% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendar years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.

Table 2-10 (Continued)
15 Year Waste Generation Projections
Assuming AB 939 Goals Can Be Achieved

| Waste Type | Calendar Year 1994 | | | | | Calendar Year 1995 | | | | |
|-----------------------|--------------------|----------------|----------------|-----------------|--|--------------------|----------------|----------------|-----------------|--|
| | Disposal | Transformation | Diversion | Generation | Diversion as a Percent of Wastes Generated | Disposal | Transformation | Diversion | Generation | Diversion as a Percent of Wastes Generated |
| PAPER | 18,696 | 0 | 5,825 | 24,520 | 3.56% | 19,070 | 0 | 5,941 | 25,011 | 3.56% |
| OCC/Kraft | 4,661 | 0 | 2,955 | 7,616 | 1.81% | 4,754 | 0 | 3,014 | 7,768 | 1.81% |
| Mixed Paper | 6,499 | 0 | 8 | 6,506 | 0.00% | 6,629 | 0 | 8 | 6,636 | 0.00% |
| Newsprint | 2,321 | 0 | 2,418 | 4,740 | 1.48% | 2,368 | 0 | 2,467 | 4,834 | 1.48% |
| High Grade | 397 | 0 | 354 | 751 | 0.22% | 405 | 0 | 361 | 766 | 0.22% |
| Other Paper | 4,818 | 0 | 90 | 4,907 | 0.05% | 4,914 | 0 | 92 | 5,006 | 0.05% |
| PLASTICS | 5,597 | 0 | 198 | 5,795 | 0.12% | 5,709 | 0 | 201 | 5,911 | 0.12% |
| HDPE | 348 | 0 | 99 | 447 | 0.06% | 355 | 0 | 101 | 456 | 0.06% |
| PET | 68 | 0 | 52 | 120 | 0.03% | 69 | 0 | 53 | 122 | 0.03% |
| Film | 2,030 | 0 | 0 | 2,030 | 0.00% | 2,071 | 0 | 0 | 2,071 | 0.00% |
| Other Plastic | 3,151 | 0 | 47 | 3,198 | 0.03% | 3,214 | 0 | 47 | 3,262 | 0.03% |
| GLASS | 2,072 | 0 | 1,272 | 3,344 | 0.78% | 2,114 | 0 | 1,297 | 3,411 | 0.78% |
| Refillable Beverage | 15 | 0 | 1 | 16 | 0.00% | 15 | 0 | 1 | 16 | 0.00% |
| CA Redemption Value | 362 | 0 | 989 | 1,351 | 0.61% | 369 | 0 | 1,009 | 1,378 | 0.61% |
| Other Recyclable | 1,383 | 0 | 240 | 1,623 | 0.15% | 1,410 | 0 | 245 | 1,655 | 0.15% |
| Other Non-Recyclable | 313 | 0 | 41 | 354 | 0.03% | 319 | 0 | 42 | 361 | 0.03% |
| METALS | 6,554 | 0 | 12,096 | 18,650 | 7.40% | 6,685 | 0 | 12,338 | 19,023 | 7.40% |
| Aluminum Cans | 175 | 0 | 708 | 883 | 0.43% | 178 | 0 | 722 | 900 | 0.43% |
| Other Ferrous | 4,446 | 0 | 10,308 | 14,754 | 6.31% | 4,535 | 0 | 10,514 | 15,050 | 6.31% |
| Other Non-ferrous | 422 | 0 | 828 | 1,250 | 0.51% | 431 | 0 | 845 | 1,275 | 0.51% |
| White Goods | 470 | 0 | 252 | 722 | 0.15% | 479 | 0 | 257 | 736 | 0.15% |
| Mixed Metals | 1,041 | 0 | 0 | 1,041 | 0.00% | 1,061 | 0 | 0 | 1,061 | 0.00% |
| YARD WASTE | 7,244 | 0 | 6,028 | 13,272 | 3.69% | 7,389 | 0 | 6,149 | 13,537 | 3.69% |
| OTHER ORGANICS | 13,826 | 2,714 | 18,839 | 35,379 | 11.52% | 14,102 | 2,768 | 19,216 | 36,086 | 11.52% |
| Food | 4,185 | 0 | 16,010 | 20,195 | 9.79% | 4,269 | 0 | 16,330 | 20,599 | 9.79% |
| Rubber/Tires | 862 | 245 | 416 | 1,523 | 0.25% | 879 | 250 | 424 | 1,553 | 0.25% |
| Wood | 3,794 | 2,469 | 2,177 | 8,440 | 1.33% | 3,870 | 2,518 | 2,221 | 8,609 | 1.33% |
| Agri. Crop Residue | 327 | 0 | 0 | 327 | 0.00% | 334 | 0 | 0 | 334 | 0.00% |
| Manure | 80 | 0 | 0 | 80 | 0.00% | 82 | 0 | 0 | 82 | 0.00% |
| Textiles/Leather | 4,570 | 0 | 1 | 4,571 | 0.00% | 4,662 | 0 | 1 | 4,663 | 0.00% |
| Other Organics | 7 | 0 | 235 | 242 | 0.14% | 7 | 0 | 240 | 247 | 0.14% |
| OTHER WASTES | 5,967 | 0 | 56,543 | 62,510 | 34.59% | 6,087 | 0 | 57,674 | 63,761 | 34.59% |
| Inert Solids | 5,407 | 0 | 56,543 | 61,950 | 34.59% | 5,515 | 0 | 57,674 | 63,189 | 34.59% |
| Hazardous | 560 | 0 | 0 | 560 | 0.00% | 572 | 0 | 0 | 572 | 0.00% |
| TOTAL | 59,9561 | 2,7141 | 100,800 | 163,4701 | 61.66% | 61,1561 | 2,768 | 102,816 | 166,7391 | 61.66% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendarary years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals

Table 2-10 (Continued)
15 Year Waste Generation Projections
Assuming AE 939 Goals Can Be Achieved

| Waste Type | Calendar Year 1996 | | | | | Calendar Year 1997 | | | | |
|-----------------------|--------------------|----------------|----------------|-----------------|---------------------------|--------------------|----------------|-----------------|-----------------|---------------------------|
| | Disposal | Transformation | Diversion | Generation | as a % of Waste Generated | Disposal | Transformation | Diversion | Generation | as a % of Waste Generated |
| PAPER | 19,451 | 0 | 6,060 | 25,511 | 3.56% | 19,840 | 0 | 6,181 | 26,021 | 3.56% |
| OCC/Kraft | 4,849 | 0 | 3,074 | 7,924 | 1.81% | 4,946 | 0 | 3,136 | 8,082 | 1.81% |
| Mixed Paper | 6,761 | 0 | 8 | 6,769 | 0.00% | 6,896 | 0 | 8 | 6,904 | 0.00% |
| Newsprint | 2,415 | 0 | 2,516 | 4,931 | 1.48% | 2,464 | 0 | 2,566 | 5,030 | 1.48% |
| High Grade | 413 | 0 | 368 | 781 | 0.22% | 421 | 0 | 376 | 797 | 0.22% |
| Other Paper | 5,012 | 0 | 93 | 5,106 | 0.05% | 5,112 | 0 | 95 | 5,208 | 0.05% |
| PLASTICS | 5,824 | 0 | 206 | 6,029 | 0.12% | 5,940 | 0 | 210 | 6,150 | 0.12% |
| HDPE | 362 | 0 | 103 | 465 | 0.06% | 369 | 0 | 105 | 474 | 0.06% |
| PET | 71 | 0 | 54 | 125 | 0.03% | 72 | 0 | 55 | 127 | 0.03% |
| Film | 2,112 | 0 | 0 | 2,112 | 0.00% | 2,155 | 0 | 0 | 2,155 | 0.00% |
| Other Plastic | 3,278 | 0 | 48 | 3,327 | 0.03% | 3,344 | 0 | 49 | 3,393 | 0.03% |
| GLASS | 2,156 | 0 | 1,323 | 3,479 | 0.78% | 2,199 | 0 | 1,349 | 3,548 | 0.78% |
| Refillable Beverage | 15 | 0 | 1 | 16 | 0.00% | 15 | 0 | 1 | 17 | 0.00% |
| CA Redemption Value | 377 | 0 | 1,029 | 1,406 | 0.61% | 384 | 0 | 1,050 | 1,434 | 0.61% |
| Other Recyclable | 1,439 | 0 | 250 | 1,689 | 0.15% | 1,467 | 0 | 255 | 1,722 | 0.15% |
| Other Non-Recyclable | 326 | 0 | 43 | 368 | 0.03% | 332 | 0 | 44 | 376 | 0.03% |
| METALS | 6,819 | 0 | 12,585 | 19,403 | 7.40% | 6,955 | 0 | 12,836 | 19,791 | 7.40% |
| Aluminum Cans | 182 | 0 | 737 | 918 | 0.43% | 185 | 0 | 751 | 937 | 0.43% |
| Other Ferrous | 4,626 | 0 | 10,724 | 15,351 | 6.31% | 4,719 | 0 | 10,939 | 15,658 | 6.31% |
| Other Non-ferrous | 439 | 0 | 862 | 1,301 | 0.51% | 448 | 0 | 879 | 1,327 | 0.51% |
| White Goods | 489 | 0 | 262 | 751 | 0.15% | 499 | 0 | 267 | 766 | 0.15% |
| Mixed Metals | 1,083 | 0 | 0 | 1,083 | 0.00% | 1,104 | 0 | 0 | 1,104 | 0.00% |
| YARD WASTE | 7,537 | 0 | 6,272 | 13,808 | 3.69% | 7,687 | 0 | 6,397 | 14,084 | 3.69% |
| OTHER ORGANICS | 14,385 | 2,824 | 19,600 | 36,808 | 11.52% | 14,672 | 2,880 | 19,992 | 37,544 | 11.52% |
| Food | 4,354 | 0 | 16,657 | 21,011 | 9.79% | 4,441 | 0 | 16,990 | 21,431 | 9.79% |
| Rubber/Tires | 897 | 255 | 433 | 1,584 | 0.25% | 915 | 260 | 441 | 1,616 | 0.25% |
| Wood | 3,947 | 2,569 | 2,265 | 8,781 | 1.33% | 4,026 | 2,620 | 2,310 | 8,957 | 1.33% |
| Agri. Crop Residue | 341 | 0 | 0 | 341 | 0.00% | 348 | 0 | 0 | 348 | 0.00% |
| Manure | 83 | 0 | 0 | 83 | 0.00% | 85 | 0 | 0 | 85 | 0.00% |
| Textiles/Leather | 4,755 | 0 | 1 | 4,756 | 0.00% | 4,850 | 0 | 1 | 4,851 | 0.00% |
| Other Organics | 8 | 0 | 244 | 252 | 0.14% | 8 | 0 | 249 | 257 | 0.14% |
| OTHER WASTES | 6,208 | 0 | 58,827 | 65,036 | 33.59% | 6,333 | 0 | 60,004 | 66,337 | 34.59% |
| Inert Solids | 5,625 | 0 | 58,827 | 64,453 | 34.59% | 5,738 | 0 | 60,004 | 65,742 | 34.59% |
| Hazardous | 583 | 0 | 0 | 583 | 0.00% | 595 | 0 | 0 | 595 | 0.00% |
| TOTAL | 62,3791 | 2,8241 | 104,872 | 170,0741 | 61.66% | 63,626 | 2,880 | 106,9691 | 173,4761 | 61.66% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendarly years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.

Table 2-10 (Continued)
15 Year Waste Generation Projections
Assuming AB 939 Goals Can Be Achieved

| Waste Type | Calendar Year 1998 | | | | | Calendar Year 1999 | | | | |
|----------------------|--------------------|--------------------------|----------------|-----------------|---|--------------------|--------------------------|----------------|-----------------|---|
| | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
| PAPER | 20,237 | 0 | 6,305 | 26,541 | 3.56% | 16,732 | 0 | 10,340 | 27,072 | 5.73% |
| OCC/Kraft | 5,045 | 0 | 3,199 | 8,244 | 1.31% | 2,770 | 0 | 5,639 | 8,409 | 3.12% |
| Mixed Paper | 7,034 | 0 | 8 | 7,043 | 0.00% | 6,843 | 0 | 340 | 7,183 | 0.19% |
| Newsprint | 2,513 | 0 | 2,617 | 5,130 | 1.48% | 1,558 | 0 | 3,675 | 5,233 | 2.04% |
| High Grade | 430 | 0 | 333 | 813 | 0.22% | 242 | 0 | 587 | 829 | 0.33% |
| Other Paper | 5,215 | 0 | 97 | 5,312 | 0.05% | 5,319 | 0 | 99 | 5,418 | 0.05% |
| PLASTICS | 6,059 | 0 | 214 | 6,273 | 0.12% | 6,102 | 0 | 296 | 6,398 | 0.16% |
| HDPE | 377 | 0 | 107 | 484 | 0.06% | 302 | 0 | 192 | 494 | 0.11% |
| PET | 74 | 0 | 56 | 130 | 0.03% | 79 | 0 | 53 | 132 | 0.03% |
| Film | 2,198 | 0 | 0 | 2,198 | 0.00% | 2,242 | 0 | 0 | 2,242 | 0.00% |
| Other Plastic | 3,411 | 0 | 50 | 3,461 | 0.03% | 3,479 | 0 | 51 | 3,530 | 0.03% |
| GLASS | 2,243 | 0 | 1,377 | 3,620 | 0.78% | 1,464 | 0 | 2,227 | 3,691 | 1.23% |
| Refillable Beverage | 16 | 0 | 2 | 18 | 0.00% | 16 | 0 | 1 | 17 | 0.00% |
| CA Redemption Value | 392 | 0 | 1,071 | 1,462 | 0.61% | 178 | 0 | 1,313 | 1,491 | 0.73% |
| Other Recyclable | 1,497 | 0 | 260 | 1,757 | 0.15% | 924 | 0 | 868 | 1,792 | 0.48% |
| Other Non-Recyclable | 339 | 0 | 45 | 383 | 0.03% | 345 | 0 | 45 | 391 | 0.03% |
| METALS | 7,034 | 0 | 13,093 | 20,187 | 7.40% | 6,060 | 0 | 14,530 | 20,590 | 8.05% |
| Aluminum Cans | 189 | 0 | 766 | 955 | 0.43% | 119 | 0 | 855 | 974 | 0.47% |
| Other Ferrous | 4,813 | 0 | 11,158 | 15,971 | 6.31% | 3,807 | 0 | 12,483 | 16,290 | 6.92% |
| Other Non-ferrous | 457 | 0 | 896 | 1,353 | 0.51% | 466 | 0 | 914 | 1,380 | 0.51% |
| White Goods | 509 | 0 | 273 | 782 | 0.15% | 519 | 0 | 278 | 797 | 0.15% |
| Mixed Metals | 1,126 | 0 | 0 | 1,126 | 0.00% | 1,149 | 0 | 0 | 1,149 | 0.00% |
| YARD WASTE | 7,841 | 0 | 6,525 | 14,366 | 3.69% | 4,213 | 0 | 10,441 | 14,654 | 5.79% |
| OTHER ORGANICS | 14,956 | 2,938 | 20,392 | 38,295 | 11.52% | 13,133 | 3,199 | 22,728 | 39,060 | 12.59% |
| Food | 4,530 | 0 | 17,330 | 21,860 | 9.79% | 4,621 | 0 | 17,676 | 22,297 | 9.79% |
| Rubber/Tires | 933 | 265 | 450 | 1,648 | 0.25% | 855 | 289 | 537 | 1,681 | 0.30% |
| Wood | 4,107 | 2,673 | 2,356 | 9,136 | 1.33% | 2,154 | 2,910 | 4,254 | 9,318 | 2.36% |
| Agri. Crop Residue | 354 | 0 | 0 | 354 | 0.00% | 362 | 0 | 0 | 362 | 0.00% |
| Manure | 87 | 0 | 0 | 87 | 0.00% | 88 | 0 | 0 | 88 | 0.00% |
| Textiles/Leather | 4,947 | 0 | 1 | 4,948 | 0.00% | 5,046 | 0 | 1 | 5,047 | 0.00% |
| Other Organics | 8 | 0 | 254 | 262 | 0.14% | 8 | 0 | 259 | 267 | 0.14% |
| OTHER WASTES | 6,459 | 0 | 61,204 | 67,663 | 34.59% | 6,588 | 0 | 62,428 | 69,017 | 34.59% |
| Inert Solids | 5,853 | 0 | 61,204 | 67,057 | 34.59% | 5,970 | 0 | 62,428 | 68,398 | 34.59% |
| Hazardous | 607 | 0 | 0 | 607 | 0.00% | 619 | 0 | 0 | 619 | 0.00% |
| TOTAL | 64,899 | 2,938 | 109,110 | 176,946 | 61.66% | 54,292 | 3,199 | 122,991 | 180,482 | 68.15% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendar years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.

Table 2-10 (Continued)
15 Year Waste Generation Projections
Assuming AB 939 Goals Can Be Achieved

| Waste Type | Calendar Year 2000 | | | | | Calendar Year 2001 | | | | |
|-----------------------|--------------------|----------------|----------------|----------------|-------------------------------------|--------------------|----------------|----------------|----------------|-------------------------------------|
| | Disposal | Transformation | Diversion | Generation | Diversion as a % of Waste Generated | Disposal | Transformation | Diversion | Generation | Diversion as a % of Waste Generated |
| PAPER | 17,067 | 0 | 10,547 | 27,614 | 5.73% | 17,408 | 0 | 10,758 | 28,166 | 5.73% |
| OCC/Kraft | 2,825 | 0 | 5,752 | 8,577 | 3.12% | 2,882 | 0 | 5,867 | 8,749 | 3.12% |
| Mixed Paper | 6,980 | 0 | 347 | 7,327 | 0.19% | 7,119 | 0 | 354 | 7,473 | 0.19% |
| Newsprint | 1,589 | 0 | 3,749 | 5,338 | 2.04% | 1,621 | 0 | 3,823 | 5,444 | 2.04% |
| Other Paper | 5,425 | 0 | 101 | 5,527 | 0.05% | 5,534 | 0 | 103 | 5,637 | 0.05% |
| PLASTICS | 6,224 | 0 | 302 | 6,526 | 0.16% | 6,348 | 0 | 308 | 6,657 | 0.16% |
| HDPE | 308 | 0 | 196 | 504 | 0.11% | 314 | 0 | 200 | 514 | 0.11% |
| PET | 81 | 0 | 54 | 135 | 0.03% | 82 | 0 | 55 | 137 | 0.03% |
| Film | 2,287 | 0 | 0 | 2,287 | 0.00% | 2,332 | 0 | 0 | 2,332 | 0.00% |
| Other Plastic | 3,549 | 0 | 52 | 3,601 | 0.03% | 3,620 | 0 | 53 | 3,673 | 0.03% |
| GLASS | 1,493 | 0 | 2,272 | 3,765 | 1.23% | 1,523 | 0 | 2,317 | 3,840 | 1.23% |
| Refillable Beverage | 16 | 0 | 1 | 17 | 0.00% | 17 | 0 | 1 | 18 | 0.00% |
| CA Redemption Value | 182 | 0 | 1,339 | 1,521 | 0.73% | 185 | 0 | 1,366 | 1,551 | 0.73% |
| Other Recyclable | 942 | 0 | 885 | 1,828 | 0.48% | 961 | 0 | 903 | 1,864 | 0.48% |
| Other Non-Recyclable | 352 | 0 | 46 | 399 | 0.03% | 359 | 0 | 47 | 407 | 0.03% |
| METALS | 6,181 | 0 | 14,821 | 21,002 | 8.05% | 6,305 | 0 | 15,118 | 21,422 | 8.05% |
| Aluminum Cans | 121 | 0 | 872 | 993 | 0.47% | 124 | 0 | 890 | 1,013 | 0.47% |
| Other Ferrous | 3,883 | 0 | 12,733 | 16,616 | 6.92% | 3,961 | 0 | 12,987 | 16,948 | 6.92% |
| Other Non-ferrous | 475 | 0 | 933 | 1,408 | 0.51% | 485 | 0 | 951 | 1,436 | 0.51% |
| White Goods | 529 | 0 | 284 | 813 | 0.15% | 540 | 0 | 289 | 829 | 0.15% |
| Mixed Metals | 1,172 | 0 | 0 | 1,172 | 0.00% | 1,195 | 0 | 0 | 1,195 | 0.00% |
| YARD WASTE | 4,297 | 0 | 10,650 | 14,947 | 5.79% | 4,383 | 0 | 10,863 | 15,246 | 5.79% |
| OTHER ORGANICS | 13,396 | 3,263 | 23,182 | 39,841 | 12.59% | 13,664 | 3,328 | 23,646 | 40,638 | 12.59% |
| Food | 4,713 | 0 | 18,030 | 22,743 | 9.79% | 4,807 | 0 | 18,390 | 23,197 | 9.79% |
| Rubber/Tires | 872 | 295 | 548 | 1,715 | 0.30% | 890 | 301 | 559 | 1,749 | 0.30% |
| Wood | 2,197 | 2,968 | 4,339 | 9,504 | 2.36% | 2,241 | 3,028 | 4,426 | 9,694 | 2.36% |
| Agri. Crop Residue | 369 | 0 | 0 | 369 | 0.00% | 376 | 0 | 0 | 376 | 0.00% |
| Manure | 90 | 0 | 0 | 90 | 0.00% | 92 | 0 | 0 | 92 | 0.00% |
| Textiles/Leather | 5,147 | 0 | 1 | 5,148 | 0.00% | 5,250 | 0 | 1 | 5,251 | 0.00% |
| Other Organics | 8 | 0 | 265 | 273 | 0.14% | 8 | 0 | 270 | 278 | 0.14% |
| OTHER WASTES | 6,720 | 0 | 63,677 | 70,397 | 34.59% | 6,855 | 0 | 64,950 | 71,805 | 34.59% |
| Inert Solids | 6,089 | 0 | 63,677 | 69,766 | 34.59% | 6,211 | 0 | 64,950 | 71,161 | 34.59% |
| Hazardous | 631 | 0 | 0 | 631 | 0.00% | 644 | 0 | 0 | 644 | 0.00% |
| TOTAL | 55,378 | 3,263 | 125,451 | 184,092 | 68.15% | 56,485 | 3,328 | 127,960 | 187,774 | 68.15% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendar years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.

Table 2-10 (Continued)
15 Year Waste Generation Projections
Assuming AB 939 Goals Can Be Achieved

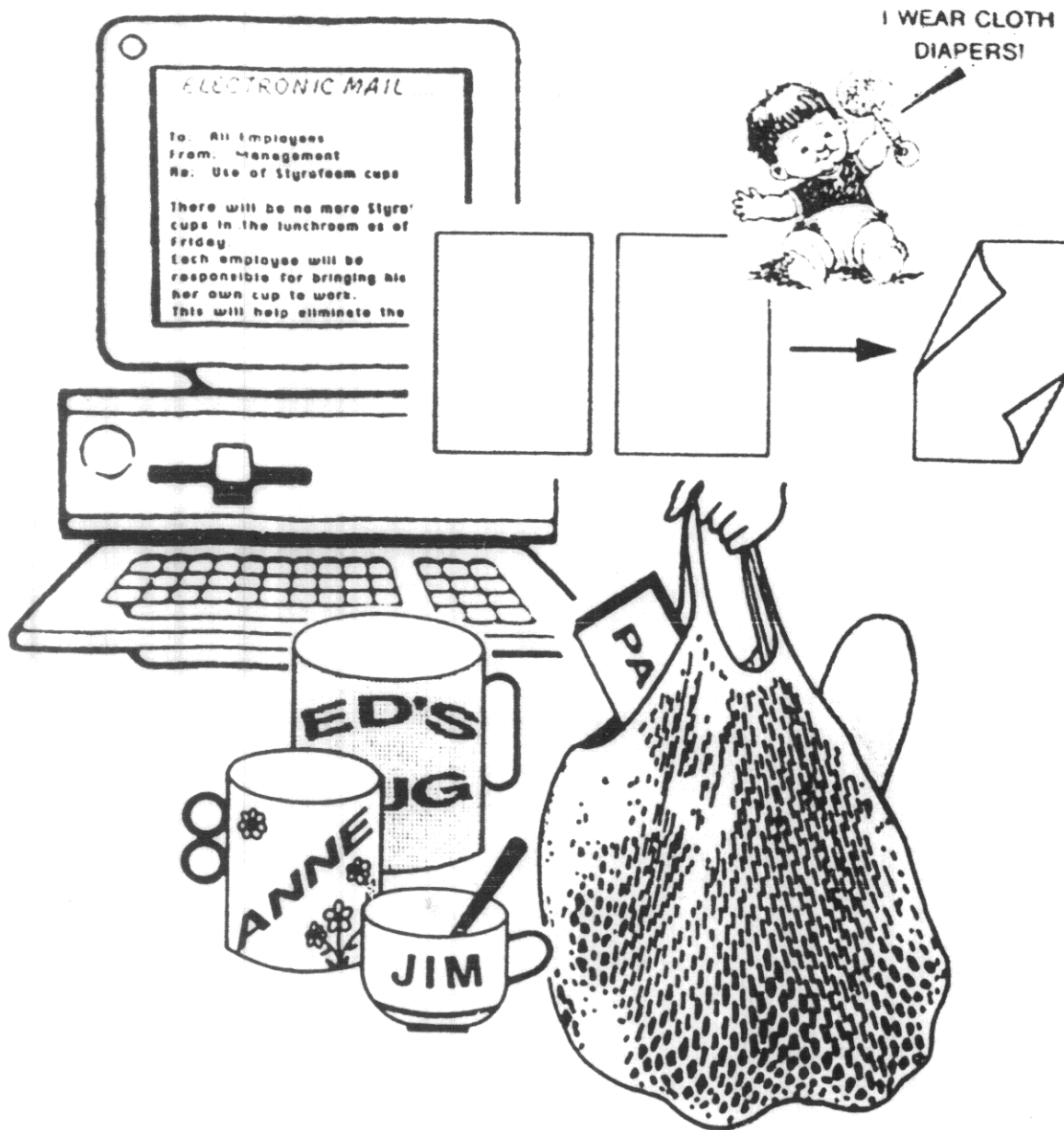
| Waste Type | Calendar Year 2002 | | | | | Calendar Year 2003 | | | | |
|-----------------------|--------------------|--------------------------|----------------|-----------------|---|--------------------|--------------------------|----------------|-----------------|---|
| | Disposal | Trans- lorn- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- lorn- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
| PAPER | 17,756 | 0 | 10,973 | 28,729 | 5.73% | 18,111 | 0 | 11,193 | 29,304 | 5.73% |
| OCC/Kraft | 2,940 | 0 | 5,984 | 8,924 | 3.12% | 2,998 | 0 | 6,104 | 9,102 | 3.12% |
| Mixed Paper | 7,262 | 0 | 361 | 7,623 | 0.19% | 7,407 | 0 | 368 | 7,775 | 0.19% |
| Newsprint | 1,653 | 0 | 3,900 | 5,553 | 2.04% | 1,686 | 0 | 3,978 | 5,664 | 2.04% |
| High Grade | 257 | 0 | 623 | 880 | 0.33% | 262 | 0 | 635 | 897 | 0.33% |
| Other Paper | 5,645 | 0 | 105 | 5,750 | 0.05% | 5,757 | 0 | 107 | 5,865 | 0.05% |
| PLASTICS | 6,475 | 0 | 315 | 6,790 | 0.16% | 6,605 | 0 | 321 | 6,926 | 0.16% |
| HDPE | 320 | 0 | 204 | 524 | 0.11% | 327 | 0 | 208 | 535 | 0.11% |
| PET | 84 | 0 | 56 | 140 | 0.03% | 86 | 0 | 57 | 143 | 0.03% |
| Film | 2,379 | 0 | 0 | 2,379 | 0.00% | 2,426 | 0 | 0 | 2,426 | 0.00% |
| Other Plastic | 3,692 | 0 | 55 | 3,747 | 0.03% | 3,766 | 0 | 56 | 3,821 | 0.03% |
| GLASS | 1,553 | 0 | 2,364 | 3,917 | 1.23% | 1,584 | 0 | 2,411 | 3,995 | 1.23% |
| Refillable Beverage | 17 | 0 | 1 | 18 | 0.00% | 17 | 0 | 1 | 18 | 0.00% |
| CA Redemption Value | 189 | 0 | 1,393 | 1,582 | 0.73% | 193 | 0 | 1,421 | 1,614 | 0.73% |
| Other Recyclable | 981 | 0 | 921 | 1,902 | 0.48% | 1,000 | 0 | 940 | 1,940 | 0.48% |
| Other Non-Recyclable | 367 | 0 | 48 | 415 | 0.03% | 374 | 0 | 49 | 423 | 0.03% |
| METALS | 6,431 | 0 | 15,420 | 21,851 | 8.05% | 6,559 | 0 | 15,728 | 22,288 | 8.05% |
| Aluminum Cans | 126 | 0 | 907 | 1,034 | 0.47% | 129 | 0 | 925 | 1,054 | 0.47% |
| Other Ferrous | 4,040 | 0 | 13,247 | 17,287 | 6.92% | 4,121 | 0 | 13,512 | 17,633 | 6.92% |
| Other Non-ferrous | 495 | 0 | 970 | 1,465 | 0.51% | 504 | 0 | 990 | 1,494 | 0.51% |
| White Goods | 551 | 0 | 295 | 846 | 0.15% | 562 | 0 | 301 | 863 | 0.15% |
| Mixed Metals | 1,219 | 0 | 0 | 1,219 | 0.00% | 1,244 | 0 | 0 | 1,244 | 0.00% |
| YARD WASTE | 4,471 | 0 | 11,080 | 15,551 | 5.79% | 4,560 | 0 | 11,302 | 15,862 | 5.79% |
| OTHER ORGANICS | 13,937 | 3,395 | 24,119 | 41,451 | 12.59% | 14,216 | 3,463 | 24,601 | 42,280 | 12.59% |
| Food | 4,903 | 0 | 18,758 | 23,661 | 9.79% | 5,001 | 0 | 19,133 | 24,135 | 9.79% |
| Rubber/Tires | 907 | 307 | 570 | 1,784 | 0.30% | 925 | 313 | 581 | 1,820 | 0.30% |
| Wood | 2,286 | 3,088 | 4,514 | 9,888 | 2.36% | 2,332 | 3,150 | 4,605 | 10,086 | 2.36% |
| Agri. Crop Residue | 384 | 0 | 0 | 384 | 0.00% | 391 | 0 | 0 | 391 | 0.00% |
| Manure | 94 | 0 | 0 | 94 | 0.00% | 96 | 0 | 0 | 96 | 0.00% |
| Textiles/Leather | 5,355 | 0 | 1 | 5,356 | 0.00% | 5,462 | 0 | 1 | 5,463 | 0.00% |
| Other Organics | 9 | 0 | 275 | 284 | 0.14% | 9 | 0 | 281 | 289 | 0.14% |
| OTHER WASTES | 6,992 | 0 | 66,249 | 73,241 | 34.59% | 7,132 | 0 | 67,574 | 74,706 | 34.59% |
| Inert Solids | 6,335 | 0 | 66,249 | 72,584 | 34.59% | 6,462 | 0 | 67,574 | 74,036 | 34.59% |
| Hazardous | 657 | 0 | 0 | 657 | 0.00% | 670 | 0 | 0 | 670 | 0.00% |
| TOTAL | 57,615 | 3,395 | 130,519 | 191,529 | 68.15% | 58,767 | 3,4631 | 133,129 | 195,360 | 68.15% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendarly years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.

Table 2-10 (Continued)
15 Year Waste Generation Projections
Assuming AB 939 Goals Can Be Achieved

| Waste Type | Calendar Year 2004 | | | | | Calendar Year 2005 | | | | |
|-----------------------|--------------------|--------------------------|----------------|-----------------|---|--------------------|--------------------------|----------------|-----------------|---|
| | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated | Disposal | Trans- form- ation | Diver- sion | Genera- tion | Diversion as a % of Waste Gener- ated |
| PAPER | 18,473 | 0 | 11,415 | 29,890 | 5.73% | 18,843 | 0 | 11,645 | 30,488 | 5.73% |
| OCC/Kraft | 3,058 | 0 | 6,226 | 9,284 | 3.12% | 3,119 | 0 | 6,350 | 9,470 | 3.12% |
| Mixed Paper | 7,555 | 0 | 375 | 7,931 | 0.19% | 7,706 | 0 | 383 | 8,089 | 0.19% |
| Newsprint | 1,720 | 0 | 4,057 | 5,778 | 2.04% | 1,755 | 0 | 4,139 | 5,893 | 2.04% |
| High Grade | 267 | 0 | 648 | 915 | 0.33% | 273 | 0 | 661 | 934 | 0.33% |
| Other Paper | 5,873 | 0 | 110 | 5,982 | 0.05% | 5,990 | 0 | 112 | 6,102 | 0.05% |
| PLASTICS | 6,737 | 0 | 327 | 7,064 | 0.16% | 6,872 | 0 | 334 | 7,205 | 0.16% |
| HDPE | 333 | 0 | 212 | 545 | 0.11% | 340 | 0 | 216 | 556 | 0.11% |
| PET | 87 | 0 | 59 | 146 | 0.03% | 89 | 0 | 60 | 149 | 0.03% |
| Film | 2,475 | 0 | 0 | 2,475 | 0.00% | 2,525 | 0 | 0 | 2,525 | 0.00% |
| Other Plastic | 3,641 | 0 | 57 | 3,698 | 0.03% | 3,918 | 0 | 58 | 3,976 | 0.03% |
| GLASS | 1,616 | 0 | 2,459 | 4,075 | 1.23% | 1,648 | 0 | 2,508 | 4,157 | 1.23% |
| Refillable Beverage | 18 | 0 | 1 | 19 | 0.00% | 18 | 0 | 1 | 19 | 0.00% |
| CA Redemption Value | 197 | 0 | 1,450 | 1,646 | 0.73% | 200 | 0 | 1,479 | 1,679 | 0.73% |
| Other Recyclable | 1,020 | 0 | 958 | 1,979 | 0.48% | 1,041 | 0 | 978 | 2,018 | 0.48% |
| Other Non-Recyclable | 381 | 0 | 50 | 432 | 0.03% | 389 | 0 | 51 | 440 | 0.03% |
| METALS | 6,691 | 0 | 16,043 | 22,733 | 8.05% | 6,824 | 0 | 16,364 | 23,188 | 8.05% |
| Aluminum Cans | 131 | 0 | 944 | 1,075 | 0.47% | 134 | 0 | 963 | 1,097 | 0.47% |
| Other Ferrous | 4,203 | 0 | 13,782 | 17,985 | 6.92% | 4,287 | 0 | 14,053 | 18,345 | 6.92% |
| Other Non-ferrous | 515 | 0 | 1,009 | 1,524 | 0.51% | 525 | 0 | 1,030 | 1,554 | 0.51% |
| Waste Goods | 573 | 0 | 307 | 880 | 0.15% | 584 | 0 | 313 | 898 | 0.15% |
| Mixed Metals | 1,269 | 0 | 0 | 1,269 | 0.00% | 1,294 | 0 | 0 | 1,294 | 0.00% |
| YARD WASTE | 4,651 | 0 | 11,528 | 16,179 | 5.79% | 4,745 | 0 | 11,758 | 16,503 | 5.79% |
| OTHER ORGANICS | 14,500 | 3,532 | 25,093 | 43,125 | 12.59% | 14,790 | 3,603 | 25,595 | 43,988 | 12.59% |
| Food | 5,101 | 0 | 19,516 | 24,617 | 9.79% | 5,204 | 0 | 19,906 | 25,110 | 9.79% |
| Rubber/Tires | 944 | 319 | 593 | 1,856 | 0.30% | 963 | 325 | 605 | 1,893 | 0.30% |
| Wood | 2,378 | 3,213 | 4,697 | 10,288 | 2.36% | 2,426 | 3,277 | 4,791 | 10,494 | 2.36% |
| Agri. Crop Residue | 399 | 0 | 0 | 399 | 0.00% | 407 | 0 | 0 | 407 | 0.00% |
| Manure | 98 | 0 | 0 | 98 | 0.00% | 100 | 0 | 0 | 100 | 0.00% |
| Textiles/Leather | 5,571 | 0 | 1 | 5,572 | 0.00% | 5,682 | 0 | 1 | 5,684 | 0.00% |
| Other Organics | 9 | 0 | 286 | 295 | 0.14% | 9 | 0 | 292 | 301 | 0.14% |
| OTHER WASTES | 7,274 | 0 | 68,926 | 76,200 | 34.59% | 7,420 | 0 | 70,304 | 77,724 | 34.59% |
| Inert Solids | 6,591 | 0 | 68,926 | 75,517 | 34.59% | 6,723 | 0 | 70,304 | 77,027 | 34.59% |
| Hazardous | 683 | 0 | 0 | 683 | 0.00% | 697 | 0 | 0 | 697 | 0.00% |
| TOTAL | 59,943 | 3,532 | 135,792 | 199,267 | 68.15% | 61,142 | 3,603 | 138,508 | 203,252 | 68.15% |

Note: For simplicity, waste generation is anticipated to increase at a rate commensurate with the population growth rate from 1990 through 1993 and from 1995 through 1998. Calendar years 1994 and 1999 reflect the City's anticipated diversion to achieve AB 939's goals.



SOURCE REDUCTION

3 SOURCE REDUCTION COMPONENT

3.1 Introduction

AB 939 places source reduction at the top of the integrated waste management hierarchy. Unlike recycling, composting, disposal, and transformation (the other constituents of an integrated waste management system), source reduction activities work to reduce or prevent the generation of solid wastes that must be managed by an integrated waste management system. Source reduction, when considered beyond its effect on solid waste, can also conserve resources and energy, and reduce land, air, and water impacts.

Source reduction activities fall into several broad categories, including

- decreased consumption
- reduced material weight and volume
- material reuse
- increased product durability

Table 3-1 lists some examples of source reduction activities. **Recycled materials** use normally refers to **purchasing** materials that have been produced with some content of recycled materials. Using products with a recycled materials content can reduce the use of virgin materials used as feedstock in many manufacturing processes.

For source reduction to be **effective**, **production**, packaging, and consumption practices must change. Only a few production and packaging practices can probably be changed at the local level; such changes commonly require action at a state or national level. In contrast, however, changes to consumption patterns *must* begin at the local level. Changes in consumption patterns may, in the long term, also affect production and packaging practices.

This component presents source reduction objectives for the City, evaluates alternatives that may be used to achieve those objectives, and identifies a plan of action that will be used by the City to address source reduction.

3.2 Goals and Objectives

The City has established three specific short-term goals for its source reduction efforts.

1. Encourage public participation in source reduction by educating the public about the consequences of their decisions with respect to the initial use, reuse, and ultimate disposal of products they may purchase. This concept has been termed "precycle."
2. Encourage source reduction practices in all aspects of City operations.
3. Minimize the quantity of solid waste generated.

The City's medium-term goal is to review and revise the short-term programs and add additional ones if needed.

The following **source** reduction objectives have been developed to meet these goals. These objectives are to be implemented in the short-term planning period (1991-1994) and continued during the **medium-term** planning period (1995-1999). Through the following objectives, Lodi estimates that it can divert up to 3 percent of **its** total wastestream. However, it is extremely difficult to quantify the current source reduction rates which would help establish reasonable diversion rates for the short- and medium-term planning periods. Thus, Section 10, the Integration Component, assumes that source reduction will not contribute measurably to diversion because it is so difficult to quantify.

Short-term Objectives (1991-1994)

1. Within 1 year after adoption of the SRRE, CWRs and the City (or a City contractor) will implement a public education program on source reduction.

The education program will focus on the following source reduction techniques:

- a. reducing the use of nonrecyclable materials
 - b. replacing disposable materials and products with reusable materials
 - c. reducing packaging
 - d. reducing the amount of yard wastes which are generated
 - e. purchasing repairable products
 - f. increasing the efficiency of the use of materials used in the commercial and industrial sectors
 - g. using compost and other materials recycled within the City and San Joaquin County
 - h. giving preference to products that help with the source reduction efforts
 - i. disseminating information about how to reduce junk mail
2. The City, by 1992, will adopt and implement City government purchasing guidelines and product specifications, and will strive to achieve an overall 5 percent reduction in its waste production (adjusted for population growth) per year. These guidelines will focus on
- a. reducing the use of nonrecyclable materials
 - b. reducing packaging materials
 - c. reducing the use of one-time use (a limited use) products in favor of reusable products
 - d. purchasing repairable products
 - e. using compost and other materials recycled within the City
3. The City will work with the Lodi Chamber of Commerce to develop, no later than July 1992, a voluntary program to encourage Chamber of Commerce members to reduce their business/industry waste an overall 5 percent by 1995 by focusing on the following activities:

- a. reducing the use of nonrecyclable materials
 - b. reducing packaging materials
 - c. reducing the use of one-time use (a limited use) products in favor of reusable products
 - d. purchasing repairable products
4. The City will request that local businesses adopt purchasing guidelines similar to the City's guidelines by 1993.
 5. By 1993, the City will develop and disseminate source reduction checklists and informational pamphlets which serve to assist City residents to consider a product's potential for reuse, durability, and recyclability. Information on consumer awareness and communication avenues with regards to grocery stores' packaging, recycling, and labeling practices shall be included. This will be developed by the City as part of the City's ongoing public information and education program.
 6. By 1993, develop a commercial and industrial waste exchange program for the City. This could be a regional waste exchange program developed in cooperation with either San Joaquin County or other nearby cities such as Galt or Stockton, or it could be a local program only for City residents and businesses.
 7. Establish a program of economic incentives and disincentives to encourage local citizens and businesses to reduce the amount of wastes they produce. By 1992, the City will evaluate appropriate incentives and disincentives, including an evaluation of an inclining rate structure¹ for garbage collection rates which penalizes wasteful practices by City residents and businesses. The results of the evaluation will be presented to the Lodi City Council with specific recommendations in early 1993.

Target waste types for source reduction have been identified based on (1) the results of the solid waste generation study, (2) the effectiveness of meeting the source reduction objectives, and (3) the criteria that include the volume and weight of the material; the hazard created by the material; materials, products, or packages made of nonrenewable resources; and the recyclability of the material.

¹ For a description of an inclining rate structure, see Section 3 4.1

Wastes targeted for source reduction in the City are

- packaging materials, including plastics and paper products
- construction materials
- single-use products, including disposable diapers, cups, utensils, office supplies, and personal care products
- repairable products, including appliances and electronics
- paper, including office paper and mixed waste paper such as paper napkins, disposable bags, and nonrecyclable junk mail

Source reduction alternatives that target the above waste types are evaluated in Section 3.4, Evaluation of Alternatives, according to their effectiveness in meeting the source reduction objectives outlined above.

3.3 Existing Conditions Description

This section describes the current source reduction activities in the City, including private business source reduction activities and national source reduction efforts. The existing source reduction diversion rate is estimated at 0.18 percent as a percentage of total wastes generated. This percentage was obtained by conducting source reduction surveys (see Section 2, Waste Generation Component, for more details about the survey). Note that all types of businesses and local industries were surveyed including large industrial generators such as General Mills Company and local wineries to copy houses, beauty parlors, and diaper services. Responses came from a wide variety of businesses. However, due to the difficulties of quantifying data, only double-sided copies and diaper services were included in calculations to establish source reduction rates for the City. The source reduction surveys indicated that a total of 48.9 tons of paper from commercial sources and 217 tons of single-use diapers were source reduced within the City in 1990. These data were verified by making follow-up phone calls to some of the survey participants. The survey source reduction rates were derived using the following assumptions.

Two-sided copies. The surveys reported a total of 102 tons of paper purchased with the percentages of two-sided copies ranging from 5 to 90 percent. Each company's reported amount of paper purchased was

multiplied by the percentage of two-sided copies reportedly made in the sum of those calculated.

Cloth diapers. There are approximately 4,500 single-use diapers per ton. Information about the number of diapers processed per week was obtained for the City of Lodi. It was assumed that if disposable diapers were used instead of cloth, the same number of disposables would be used as cloth diapers processed during a given time period. Thus, the amount per year could be derived by multiplying the amount of diapers processed per week to get the amount processed for the year 1990. This number was then divided by the 4,500 diapers to get a year tonnage rate of 217 tons.

Given that source reduction as a waste diversion practice is a relatively recent phenomenon, the quantitative effectiveness of most current source reduction activities is difficult to assess because records and data are not available. The description of existing conditions for some source reduction activities is therefore qualitative. The existing activities that are conducted by CWRS will not be decreased in scope. Other existing private business source reduction activities are not expected to decrease in scope either.

3.3.1 Private Business Source Reduction Activities

Existing source reduction activities are anticipated to continue at their present rates. These activities occur in spite of any programs the City has established. Please refer to the integration component for estimates of quantities to be diverted by the source reduction programs the City will implement.

Private business source reduction activities were identified by the source reduction survey that was conducted as part of the solid waste generation study (see Section 2). Most businesses that responded to the survey reported they were using some type of source reduction, including

- reusing packaging material
- creating scratch pads from blank sides of paper
- using cloth towels and sponges in the cafeteria
- routing memos
- reusing file folders and interoffice envelopes

- using refillable pens and mechanical pencils
- using scrap paper for interoffice communications
- renting equipment instead of purchasing it
- donating old equipment to schools and charities
- using nondisposable utensils, dishes, and drink containers
- heating buildings with waste wood in winter months
- reusing air filters after they are cleaned
- buying in bulk
- using shredded paper for packaging material
- reusing cardboard boxes
- instituting electronic mail

CWRS currently conducts waste evaluations to help businesses identify what waste types they generate that can be source reduced or recycled, or both. They also offer technical assistance through its commercial and industrial collection programs. CWRS also publishes educational materials about source reduction such as *People Who Care...Recycle*. This pamphlet encourages readers to 'revise' their buying habits and "reduce" the amount of waste they generate.

3.3.2 State Source Reduction Programs

The CIWMB has a free service available to help with source reduction. CALMAX is a waste materials exchange listing that provides information on materials available and materials wanted. Interested parties can call (916) 255-2369 or (800) 553-2962.

3.3.3 National Source Reduction Efforts

Many of the source reduction activities impacting the waste generated by the City are actually being conducted on a national scale. These national efforts affect the products purchased in stores and used by residences

and businesses in Lodi. The following are some examples of major national source reduction efforts:²

- Some manufacturers offer concentrated versions of products which use less packaging (e.g., frozen juices, concentrated pesticides, and concentrated soaps).
- Packaging changes initiated by one manufacturer include
 - Disposable diapers and diaper packages were changed so that the net total amount of materials in the product and package was 50 percent less than the preceding design.
 - Peanut butter and mouthwash packages were changed from glass to PET, reducing the weight of packaging by 80 and 90 percent, respectively.
 - Detergent with bleach eliminates the need for separate purchase of bleach.
- Shrink and stretch wrap plastic materials are replacing higher volume corrugated paper in many applications.
- One manufacturer changed the tub of a dishwasher from enameled steel to engineered plastic, which enables the warranty on the dishwasher to be increased because the tub is more durable.
- A new blow-molding tool for plastic (HDPE) milk bottles reduces their weight 10 percent, while increasing strength.
- A heat-set technology makes it possible to use PET containers for liquids that must be hot-filled. The new technology allowed a juice company to switch from glass to plastic bottles, resulting in a 25 percent reduction in weight. The change was made to appeal to consumers' desire for lighter weight and safer bottles and to affect long-term cost savings in bottling and shipping.
- Magazines are often shipped in plastic instead of heavy paper wrappers.

² This summary is based on information from The U.S. Congress, Office of Technology Assessment. Facing America's Trash - *What Next for Municipal Solid Waste*. OTA-0-424, Washington, DC U S Government Printing Office, October 1989.

- One soap manufacturer has made a single-bar shampoo soap since about 1960; while this product requires some packaging, it avoids the use of larger containers.
- Plastic bags bought by a major "fast food" chain to ship products to its stores are designed to be reused as garbage bags.
- A large video rental and sales chain trains its sales people to (1) reuse the distinctive plastic bags that tapes are carried in and (2) request that customers return the tapes in the bags, in the process saving about \$1 million and over 25 million bags annually.

3.4 Evaluation of Alternatives

This section presents an evaluation of four broad categories of source reduction activities that can be used in the City to meet the source reduction objectives presented in Section 3.2. The categories, along with their respective alternative activities, are as follows:

- **Category 1 - rate structure modifications.** including local waste disposal fee modification, weight- or volume-based user fees, or inverted price structures
- **Category 2 - economic incentives.** including loans, grants, loan guarantees, business license fee incentives, and deposits, refunds, and rebates
- **Category 3 - technical assistance and public education,** including waste audits, technical assistance to industry and consumer organizations, educational efforts, promotional activities, and purchasing procurement programs
- **Category 4 - regulatory programs,** including adoption of local ordinances to enhance recycling and source reduction, and required planning and reporting by waste generators

These categories of source reduction alternatives are evaluated below based on the evaluation approach described in Appendix B. As presented in Section 18733.3 of Article 6.2 of Title 14, the evaluation criteria are as follows:

- effectiveness
- hazard
- ability to accommodate change
- consequences on the wastestream
- implementation period
- facility requirements
- consistency with local plans and policies
- institutional barriers
- estimated cost
- end uses

For each evaluation criterion, a rating of high, medium, or low is assigned, and a discussion of potential issues is given. As structured by the regulations governing AB 939, some of the criteria by which the alternatives are required to be evaluated are positive in tone (e.g., effectiveness), while others are inherently negative (e.g., hazard). A high rating **for** a positive criterion implies a positive rating; on the other hand, a high rating for a negative criterion corresponds to few or no impacts associated with this potential problem. To avoid confusion, a high ranking evaluation criterion receives ★★★, medium receives ★★, and low receives ★. The rating results of the evaluation are summarized in Table 3-2, which is presented at the end of this section.

Many of these activities are complementary to each other and depend significantly on the implementation of other alternatives, programs, or components presented elsewhere in the SRRE. The alternatives are evaluated in terms of their effectiveness and impact on the entire waste diversion system, including recycling and composting, and not as alternatives independent of one another.

3.4.1 Category 1. Rate Structure Modifications

Source reduction can be encouraged through rate structure modifications, including disposal fees and quantity-based user fees for garbage collection services. Rate structure modifications, described below, address all source reduction objectives identified in Section 3.2.

Weight- or volume-based user fees or an inverted rate (or inclining) structure can be combined with a strong collection program for recycling in order to promote source reduction. An inverted or inclining rate structure is based on the idea that the second and subsequent refuse containers cost a lot more than the first container. A declining rate structure, which is the current residential rate structure in Lodi, is based on the concept that the second and subsequent refuse containers cost less than the first.

Alternatively, basing service charges on the amount of waste (either by weight or by volume) can have significant impact on bringing the whole spectrum of solid waste issues, including recycling, composting, and source reduction to the user's doorstep. Studies indicate that quantity-based user fees are most successful when free or low-cost collection of recyclables and yard waste is provided as a means of reducing wastes.

Incentive-based rate design must be combined with recycling and waste reduction programs in order to be effective. The best incentives are provided by systems that charge customers based closely on the actual amount of waste disposed. This way, a customer's behavior is more closely associated with the amount paid. Traditional subscribed systems do not provide this incentive, because incentives do not vary with weekly variations in waste. However, subscription systems are easier to implement than systems that require the recording of items for each pick-up and provide revenue stability.

The steeper the extra charge for additional waste, the greater the incentive to recycle. Higher rates on extra service levels provide an incentive to reduce waste **by a variety of means. To avoid the problem** of customers electing to dispose of their wastes through undesirable means, such as illegal dumping, it is imperative that convenient alternatives exist, such as curbside recycling programs or yard waste pick-up service.

CWRS has proposed that the City change the present rate system to an **inverted** or inclining rate structure in 1992. This change in rate structure could be implemented in conjunction with other changes proposed by

CWRS in the ~~semiautomated/automated~~ collection system. These are discussed in the recycling and composting components, Sections 4 and 5. Inclining rate structures work best when they are implemented, in conjunction with other programs which provide increased opportunities for residents to divert their wastes.

Consumer acceptance for this alternative could be enhanced by phasing in the new rate structure over a 2-year period. The first year the rates could be linear in structure with the second year being the year the inverted rate structure is fully implemented.

Effectiveness. ★★★³ Rate structure modifications can be very effective in encouraging source reduction, since the cost of disposal or collection of disposables *can* be high. Variable rate structures cause generators to become more conscious of the wastes they generate, which provides an economic incentive ~~for~~ implementing source reduction, recycling, and composting practices. The effectiveness of ~~variable~~ rate structures is sensitive to the ~~rate~~ at which collection and disposal fees rise. As fees increase, ~~participation~~ and effectiveness will increase. However, there is an upper limit to the variable rate structure beyond which illegal dumping will begin to occur.

Hazard. ★★★ There are no hazards directly related to this alternative. However, this alternative will make waste disposal more costly and restrictive, and could result in illegal dumping and related health and safety concerns.

Ability to accommodate change. ★★ Rate structure modifications are adaptable to changing conditions. The ability to change rates for solid waste collection rests with the Lodi City Council. Over the ~~short~~ and medium term this alternative is quite flexible.

Consequences on the wastestream. ★★★ Rate Structure modifications can provide incentives to participate in recycling and ~~composting~~ programs resulting in a wastestream of lower volume, higher density, and comprised of lower proportions of recyclables and yard waste. However, this program does not shift solid waste generation from one type of solid ~~waste~~ production to another.

³ Refers to relative rating of the alternative with respect to this criterion.

Implementation ~~period~~. ★★★ Rate structure modifications can be implemented during the short-term planning period.

Facility requirements. ★★★ ~~NO~~ facilities are needed to implement rate structure modifications in the City.

Consistency with **local plans** and **policies**. ★★★ Rate structure modifications are **consistent** with the City's policy to reduce the amount of solid waste being disposed.

Institutional barriers. ★★ Institutional barriers may have some impact on this alternative. City residents and commercial and industrial customers can haul refuse directly to the transfer station and the County landfill with a permit from the City of Lodi. In spite of this, a disposal fee modification can be implemented at the landfill and transfer stations to provide an incentive for residents and businesses who self-haul their waste to also source reduce and recycle.

Estimated **cost**. ★★ Costs would be incurred for City and CWRS staff time and outside service fees to develop and review CWRS' proposal for an inverted rate structure. Total combined City/CWRS implementation costs for a **rate** structure modification is estimated to range from \$75,000 to \$150,000 (Source: CWRS).

There are other **costs** indirectly associated with this alternative. Reduced volumes of waste which are landfilled could trigger increased disposal fees at the landfill. With less tonnage coming through the gate there is less revenue to cover fixed operating costs resulting from increased regulatory requirements, thus ultimately resulting in increased costs per ton of refuse disposed.

End uses. Not applicable,

3.4.2 Category 2. Economic Incentives

Source reduction activities can be **encouraged** through economic incentives, including tax credits and exemptions, grants, loans, loan guarantees, deposits, refunds, rebates, and reduced business license fees. Economic incentives, which can be directed at consumers and businesses, are designed to encourage source reduction by linking an economic benefit to the implementation of source reduction activities. Economic incentives, described below, address all source reduction objectives identified in Section 3.2.

Tax credits/exemptions. Tax credits/exemptions can be given to businesses that implement formal source reduction activities for manufacturing or consuming.

Loans, grants, and loan guarantees. Loans, grants, and loan guarantees can provide direct economic assistance to businesses for the purpose of implementing source reduction activities. Funds can be used to purchase copy machines that produce double-sided copies and source reduction and recycling educational materials.

Deposits, refunds, and rebates. Deposits, refunds, and rebates can include deposits on hard-to-recycle materials or materials that are non-durable, and refunds and rebates on recycled or recyclable materials. This might include reusing containers and shopping bags or repairing automobile batteries, small batteries, and power tools. Rebates could be offered to entice consumers to buy used or refurbished merchandise.

Business **license fee** incentives. Lodi ~~assesses~~ businesses ~~for~~ a nominal \$10 business license fee. These fees have not been raised in many years. Business license fees should be raised to reflect actual administration costs as well as costs for inflation. Fees could be increased sufficiently to help fund some of the source reduction and recycling programs the City is developing.

If new higher business license fees are established, rates could then be lowered for those businesses that can prove that they are using source reduction practices. Fees could be set in increments based on the extent of each businesses source reduction (and recycling) activities that can be documented. For example, businesses that can provide documentation of their source reduction efforts such as receipts for a 6-month supply of recycled paper or retreaded tires for company vehicles, could receive a 10 percent discount on their business license fee. If they could also document how their efforts help "close the loop," they might get a 20 percent rate reduction. Examples of "closing the loop" include such things as purchasing recycled paper. Receipts could be used to document these types of activities.

Estimation of how much source reduction will be achieved by economic incentives is difficult. However, if the incentives encourage businesses to make two-sided copies, the estimate can be based on the amount of high-grade paper disposed of. Approximately 500 tons of high-grade paper were disposed of in 1990. In 1990, source reduction via use of double-

sided copies diverted approximately 49 tons of paper from disposal, This is less than 1 percent of paper waste generated in Lodi.

Effectiveness. ★ The potential benefits of economic incentives are minimal.

Hazard. ★★★ Economic incentives would not create a hazard in the City.

Ability to accommodate change. ★★★ Economic incentives can be modified to accommodate changes in consumption patterns, availability of materials, and the economy. However, business license fee revisions are easy to modify since they are usually modified on a regular basis.

Consequences on the wastestream. ★★★ Economic incentives would be designed to reduce waste at the source, thereby avoiding substitution of a product or material that results in an equivalent or greater amount of waste being generated.

Implementation period. ★★ Economic incentives can be difficult to implement due to the difficulty in gaining approval by the necessary agencies. Increasing tax rates or making deposit fees are examples of time-consuming implementation procedures. However, business license fee modifications could be easily implemented at the local level.

Facility requirements. ★★★ No facilities are needed to implement economic incentives in the City.

Consistency with local plans and policies. ★★ The City does plan to modify its business license fees in the near future. This alternative is consistent with City plans and policies.

Institutional **barriers**. ★ The community may object to giving economic incentives to some businesses creating an inequitable climate for competition. In addition, there may be opposition to raising business fees.

Estimated cost. ★★ If business fee rate incentives were used along with a substantial base rate increase, costs for this program are estimated at \$2,500 annually. If the business fees are raised adequately, this program would increase revenue.

End uses. Not applicable.

3.4.3 Category 3. Technical Assistance and Public Education

Alternative source reduction activities included in this category are waste evaluations, technical assistance, educational efforts, and promotional activities.

Expand **waste** evaluation efforts. Waste evaluations serve to identify what waste types generated by a business can be targeted by that business for source reduction activities and recycling. CWRS already conducts waste audits and plans to continue, as well as expand this effort.

Technical assistance. Technical assistance to businesses and consumers can be accomplished through workshops and seminars that address practical ways to reduce the quantity of wastes generated by methods such as participating in waste exchange programs. Topics include decreased consumption, reuse of materials, procurement practices, and increased manufacturing efficiency. CWRS has a technical assistance program in place. CWRS plans to expand these technical assistance services to commercial and industrial businesses. These expansion efforts will include helping to coordinate waste exchange efforts between businesses.

Educational efforts. Educational efforts are an invaluable means of developing consumer awareness about the benefits of source reduction. Consumer awareness can bring about changes in consumption patterns that presently favor virgin materials and products that promise time savings and convenience. Educational programs emphasize the need for, and benefits of, source reduction as well as provide information to the public about how to integrate source reduction throughout their personal and business activities. CWRS and the Lodi Unified School District address source reduction practices in the science curricula for kindergarten through eighth grade. Source reduction messages are also disseminated through the speakers' bureau. The City and CWRS recognize a need to expand these programs to reach a broader target audience.

Promotion. Public recognition and community service awards can be used by the City to publicly acknowledge businesses that have implemented source reduction activities. Awards can be presented to community groups or individuals that are promoting source reduction either through example or education. Possible approaches could range from local pride campaigns emphasizing waste reduction and environmental awareness to reporting in the local newspaper examples of model source

reduction programs. Examples of such activities include a volunteer program where Chamber of Commerce members strive to reduce their solid waste 5 percent by 1995. Another example might be to give recognition to those businesses and industries that participate in waste exchange activities. CWRSS already provides many of these services and plans to do more.

Measuring the amount of waste that can be source reduced by technical assistance and related activities is difficult.

Effectiveness. ★★★ An effective technical assistance program combined with education and promotion can result in significant reductions in quantities of solid waste disposed. However, actual quantities are difficult to estimate from this type of program.

Hazard. ★★★ The programs presented in this alternative would not create hazards.

Ability to accommodate change. ★★★ The alternative programs can be modified in their focus, scope, and intensity to accommodate changes in local waste management programs, changes in consumption patterns, and other factors.

Consequences on the wastestream. ★★★ The alternative source reduction activities would be designed to reduce waste at the source, and avoid substitution of a product or material that results in an equivalent or greater amount of waste being generated.

Implementation period. ★★★ The alternative programs can be implemented in the short-term planning period. The need for additional staffing is the main factor that could delay implementation.

Facility requirements. ★★★ No additional facilities would **probably** be required. Existing educational facilities could serve as locations for seminars and educational workshops.

Consistency with local plans and policies. ★★★ The alternative programs are consistent with local policies. The City has historically considered educational activities for waste management superior to regulatory controls.

institutional barriers. ★★★ There are no institutional barriers to implementing the alternative programs.

Estimated cost. ★★ The combined costs for the alternative programs undertaken by the City and CWRs are estimated to range from \$20,000 to \$80,000 (Source: CWRs), depending on how program responsibilities are allocated between the City and CWRs. CWRs will be upgrading and expanding many of its services; many which include the types of activities listed in these programs. Staffing would constitute the majority of the costs of implementing the programs. The bulk of the cost involves staff resources to conduct waste audits. Staff to implement the educational programs are included in the education and public information component of program costs (see Section 7). Other costs include promotional materials, technical assistance brochures, publicity, and public outreach. Coordinating activities between the City and CWRs will help prevent duplication of effort and unnecessary additional costs.

End uses. Not applicable.

3.4.4 Category 4. Regulatory Programs

Several alternative regulatory programs are available to the City that address the source reduction objectives (see Section 3.2). These programs include local procurement ordinances, required waste reduction planning and reporting, and local adoption of product bans. Regulatory programs require continuous enforcement efforts.

Local procurement ordinances. Local procurement ordinances that specify minimum criteria for local government purchases, including durability, recyclability, reusability, and recycled content, can be implemented.

Waste reduction planning and reporting. Waste reduction planning and reporting would require each business to establish a source reduction plan outlining what source reduction activities will be implemented. Businesses would also be required to report quantities of waste source reduced. These quantities will help document the actual source reduction rates, which are often hard to quantify.

Another example of waste reduction planning and reporting is a proposal by Californians Against Waste, a grass-roots recycling organization based in Sacramento. Californians Against Waste has proposed that each jurisdiction adopt its own model Take-out Food Packaging, Recycling, and Waste Reduction Ordinance. The proposed ordinance would require producers of take-out food packaging to meet specified percentages of recy-

pled materials and postconsumer recycled materials as a condition of access to the marketplace or be subject to a fine of \$500 for each day of violation.

If more people used cloth diapers instead of disposables, one could make estimates based on the information provided from the waste generation study (see Section 2). Almost 217 tons of single-use diapers were diverted from the wastestream in 1990. If 10 percent more were diverted in the short term and 20 percent in the medium term, about 21 tons (0.01 percent) and 43 tons (0.02 percent) of diapers could be diverted from the total waste generated, respectively. Estimating the other amounts of waste reduction would not be possible until the program is in place. Even then, only if quantifiable data are gathered to represent the "before" and "after" amounts, reduction rates will be hard to measure.

Effectiveness. ★★ The effectiveness of regulatory programs would depend on the level of regulation imposed by the City, the materials targeted, adherence to the regulations by the community, and enforcement efforts by the City.

Hazard. ★★★ Regulatory programs would not create a hazard.

Ability to accommodate change. ★ Regulatory measures are not readily adaptable to changing social and economic conditions because of the approval process that must be followed in order to effect change.

Consequences on the wastestream. ★ Regulatory programs can result in a shift in waste type generation from one material to another. For example, a ban on Styrofoam cups would result in a shift to plastic-coated paper cups which weigh more and may not be easily recycled.

Implementation period. ★ A complex approval process, and anticipated resistance by businesses to regulation by the City, could prohibit implementing regulatory programs in the short- and medium-term planning periods. Government procurement policies, however, can be implemented in the short-term planning period.

Facility requirements. ★★★ Facilities are not necessary to implement regulatory programs.

Consistency with local plans and policies. ★★ Regulatory waste reduction programs generally are not consistent with local policies. Pro-

curement policies for government agencies. however. are consistent with local policies.

Institutional barriers. ★ Regulatory actions for source reduction . . . require more paperwork or increased operating costs on the part of businesses, would probably encounter some resistance. Previous Considerations of product bans by other communities have resulted in much opposition from businesses.

Estimated cost. ★★ Costs associated with legal fees and staffing would be incurred during the approval process. Implementing, monitoring, and enforcing regulatory programs would require staff time. Costs for regulatory programs largely depend on the level of regulatory programs that the City chooses to pursue. If the City just requires businesses to develop local procurement ordinances, this would be less time consuming to enforce than approving source reduction plans and enforcing product bans. Cost for developing a source reduction ordinance could range from \$7,000 to \$10,000.

End uses. Not applicable.

3.5 Selection of Program

Source reduction programs were selected for the City based on the City's objectives, the results of the evaluation, and the ease of implementation. Table 3-2 illustrates how the evaluation criteria ranked the various alternatives.

The alternatives selected to be implemented in the City include (1) quantity- or volume-based user fees, (2) business license fee rate incentives, (3) public education, (4) promotion, and (5) local procurement guidelines. These alternatives will be continued during the medium term and expanded if necessary.

3.5.1 Alternatives Selected

Short-term Planning Period

Rate structure modifications are selected since the City is evaluating the feasibility of changing to an inclining rate structure which has been proposed by CWRS, the City's exclusive franchise hauler. Note that an inclining rate structure is similar to a variable can rate structure, where the cost of subscribing to an additional refuse container is substantially more

expensive than the first. Implementation should not be too difficult since, at the same time, CWRs plans to change to a semiautomated/automated waste cart system which provides one cart for refuse, one for commingled recyclables, and one for yard wastes. The new rates will be an effective method to reduce the amount of waste thrown away because of the additional costs to the waste generator.

This program satisfies the City's objective number seven (to establish a program of economic incentives and disincentives to encourage local citizens and businesses to reduce the amount of waste they produce) by providing residents with an incentive to reduce wastes to avoid paying for an additional waste Cart for refuse.

Business fee license incentives are selected because it will encourage businesses to source reduce and will be fairly easy to implement and enforce. This alternative satisfies the City's objective number seven (to establish a program of economic incentives and disincentives to encourage local citizens and businesses to reduce the amount of waste they produce). By providing decreased rates for those businesses who source reduce and recycle, businesses **will** be made aware of the importance of source reduction while realizing a cost saving.

Public education is selected to increase general awareness about source reduction and the need to **conserve** resources. This alternative satisfies the City's objective one to implement a public education program on source reduction. Educational efforts will be geared towards developing consumer awareness about the benefits of source reduction. An example would be to let people know how to reduce their junk mail. Consumer awareness can bring about changes in consumption patterns, and subsequent changes in production and packaging processes by manufacturers. This alternative satisfies the City's objective numbers one (implement a public education program on source reduction) and five (the City will develop and disseminate source reduction checklists and information pamphlets regarding products reuse, durability, and recyclability).

As shown in Table 3-2, technical assistance and public education efforts offer the greatest opportunity to achieve significant source reduction. Education curriculum will encourage children to reduce waste, which should encourage other family members to incorporate source reduction behavior. Education not only brings the problem and the solution to the intended

public. but it Serves to accommodate and enhance the other selected waste reduction programs.

Promotion is selected by the City to acknowledge businesses that have implemented source reduction activities. This alternative satisfies the City's objective numbers three (the City will work with the Chamber of Commerce to develop a volunteer program to encourage businesses and industries to reduce their wastes), five (the City will develop and disseminate source reduction checklists and information pamphlets regarding products reuse, durability, and recyclability). and six (develop a commercial and industrial waste exchange program). Awards or public recognition, or both, will be given to community groups, businesses, or individuals that are promoting source reduction in the community either through example or through education.

Public recognition and awards provide the City's source reduction program with high visibility which will help to encourage the adoption of source reduction behavior in the community. By publicly recognizing businesses that are committed to waste reduction, the City will encourage companies interested in maintaining or establishing a "socially and environmentally responsible" image to implement source reduction practices and education programs for employees.

Local procurement guidelines were selected because the City wants to take the lead in promoting source reduction. This alternative satisfies the City's objective number two (the City will adopt and implement City government purchasing guidelines and product specifications). The procurement guidelines will assist the governmental agencies in the City to purchase materials, when possible, that are made of recycled material, and promote the purchase of reusable, repairable, and recyclable products. City purchasing practices can also take into account the potential to extend the useful life of affected materials, products, or packaging, and whether the waste type has limited recyclability. The City will encourage businesses to use the City's procurement guidelines as a model to develop their own. These guidelines can be combined with the "Create Local Markets for Recyclable Materials" alternative presented in the recycling component. This will save costs as well as ease implementation. This will satisfy the City's objective number four (the City will request that local businesses adopt purchasing guidelines similar to the city's).

Medium-term Planning Period

The short-term objectives will be continued in the medium term. If needed, these programs will be modified or expanded, or both.

Assessing the actual quantities that can be reduced through source reduction activities is difficult, in part, because of the newness of this concept. Further, waste generation studies targeted to measure source reduction changes might be necessary to measure quantities reduced.

The types of materials anticipated to be reduced through source reduction in the City include

- packaging materials, including plastics and paper products
- construction materials
- single-use products, including disposable diapers and disposable cups
- repairable products, including appliances and electronics
- paper, including mixed waste paper such as paper napkins, disposable bags, and nonrecyclable junk mail
- household hazardous materials

3.5.2 Cooperative or **Multijurisdictional** Program Implementation Efforts, Actions, and Activities

National efforts. Source reduction is generally considered a national policy requiring the cooperation of business, industry, consumers, and government. Source reduction requires manufacturers to design products with durability, reusability, and recyclability in mind. Source reduction involves changing the way products are manufactured and packaged. Lodi needs to continue to be aware of the product trends occurring on a national level in order to effectively encourage source reduction efforts locally.

Cooperative **activities**. The City can benefit from technical assistance and educational materials developed by other jurisdictions. The City can also benefit from free educational materials produced by the State Department of Conservation and the CIWMB.

Promotional materials such as stickers and buttons can be an effective means of educating the public on the concept of source reduction. Using these materials is most cost effective when they are purchased in large quantities. The City could coordinate purchases of promotional materials with the neighboring jurisdictions, as well as with other nearby counties in order to take advantage of such savings. Public information efforts involving public service announcements and televised programming could also be coordinated and funded jointly.

3.5.3 Facilities Needed for Implementation

The programs selected do not require any major new or expanded facilities. However, in combination with other alternatives, this alternative may add to the eventual need for expanded facilities for materials recovery and composting.

3.6 Program Implementation

3.6.1 Government Agencies Responsible for Implementation

The City Manager's office will be responsible for coordinating the implementation of the selected programs.

3.6.2 Implementation Tasks

The implementation tasks for selected source reduction programs are presented in Table 3-3.

3.6.3 Implementation Schedule

The implementation schedule for selected source reduction programs is presented in Table 3-3.

3.6.4 Implementation Costs, Revenues, and Revenue Sources

Some of the implementation costs for selected source reduction programs are included in the education and public information component and the recycling component. Other costs for rate structure modifications are shown in Table 3-4. Revenue sources for the necessary programs will be fees or service charges imposed by the City for programs undertaken by CWRS.

Revenues and revenue sources include monies from business license fees and the surcharge the City will add to the waste service fees for funding solid waste programs required to meet the mandated solid waste reduction goals.

3.7 Monitoring and Evaluation

3.7.1 Methods to Quantify and Monitor Achievement of Objectives

The following methods will be used to quantify and monitor the achievement of the source reduction objectives.

Objective 1. Implement a Citywide public education program on source reduction.

Evaluation method. Survey the agencies involved in the education program to get their opinion about how the program is working. Obtain information about what has been accomplished and the amounts source reduced since the program was initiated compared to previous source reduction activities.

Objective 2 Adopt and implement City government purchasing guidelines and product specifications to achieve an overall 5 percent reduction in the City's waste production.

Evaluation method. Review purchasing records from past years and compare with records after the purchasing guidelines have been implemented for 1 year. Adjust amounts for population growth. Review records annually and track reduction rates.

Objective 3. Develop a voluntary program to encourage Chamber of Commerce members to reduce their business/industry waste an overall 5 percent by 1995.

Evaluation method. Establish an inventory sheet for all voluntary participants showing initial material amounts for items targeted for source reduction. Have volunteers fill out an inventory sheet on a periodic basis to

establish reduction rates for the items targeted. Total results on an annual basis.

Objective 4. The City will request that local businesses adopt purchasing guidelines by 1993.

Evaluation method. Once the City's purchasing guidelines are completed and adopted, use them as a model for others to follow. Send notices with an interest form to all local businesses letting them know of the City's request. Use the form to track who is interested in developing their own guidelines and follow-up biannually to see which businesses have implemented the guidelines.

Objective 5. The City will develop and disseminate source reduction checklists and informational pamphlets as part of the City's ongoing public information and education program.

Evaluation method. Keep records of all the people and businesses which received the checklist and pamphlets. Conduct a random survey to find out if the information has been useful.

Objective 6. Develop a commercial and industrial waste exchange program for the City.

Evaluation method. When developing the exchange program, include a participant list noting materials exchanged. Make sure amounts are specified. Compare amounts on a regular basis to note success of the program. If confidentiality is a concern, use identification numbers instead of business names on the exchange list.

Objective 7. By 1993, establish a program of economic incentives and disincentives to encourage local citizens and businesses to reduce the amount of wastes they produce.

Evaluation method. Keep a log of incentives rewarded and compare on a regular basis. Develop disincentives that are countable such as fines or

exclusion from favorable lists (such as a list of businesses that promote recycling).

3.7.2 Written Criteria for Evaluating the Programs' Effectiveness

Lodi will evaluate the success of the source reduction activities by the following criteria:

- Does the community have a greater understanding of the concept of source reduction?
- Are the source reduction objectives being achieved?
- Were the program activities implemented on schedule?
- Have businesses' and the City's procurement practices changed?

3.7.3 Agencies Responsible for the Programs' Monitoring, Evaluation, and Reporting

The City manager's office will be responsible for monitoring and evaluating the effectiveness of the source reduction programs.

3.7.4 **Monitoring** and Evaluating Funding Requirements, Revenues, and Revenue Sources

Funding is needed to monitor the effectiveness of the source reduction activities implemented in the City, particularly for staffing, surveys, and recordkeeping. Approximately \$15,000 will be needed to effectively monitor source reduction activities; \$10,000 for staffing; and \$5,000 for materials.

Revenues and revenue sources will come from either fees or service charges levied by the City on solid waste generators.

3.7.5 Contingency Measures

If Lodi fails to make reasonable progress toward its source reduction objectives, the City will implement the following measures:

- increased staffing for technical assistance, education, waste audits, and other public awareness programs
- implementation of economic incentives reward program

- expansion *of* selected programs
- required waste reduction planning and reporting by businesses

Table 3-1
What is Source Reduction?

| Decreased Consumption | Material Reuse |
|---|---|
| <p><u>Reduce Material Volume</u></p> <ul style="list-style-type: none"> • Make two-sided copies • Use routing slips • Use electronic mail • Buy in bulk • Offer waste reduction incentives to employees <p><u>Increase Product Durability</u></p> <ul style="list-style-type: none"> • Purchase durable goods • Design durable products • Provide/use maintenance contracts to extend the life of equipment | <ul style="list-style-type: none"> • Use cloth towels, retreaded tires, refillable pens, reusable air filters, returnable bottles • Reuse packaging or packing material • Provide/use returnable packaging containers • Donate used equipment • Use ceramic coffee mugs • Reuse blank sides of paper for scratch • Use silverware and dishes in the cafeteria • Compost, mulch, or chip on site • Rent equipment rather than buying • Use a waste exchange program • Design for reuse or recyclability |

Table 3-2
Alternatives Evaluation for
Source Reduction Programs

| Program Categories | Evaluation Criteria | | | | | |
|---|---------------------|--------|-------------------------------|---------------------------------|-----------------------|-----------------------|
| | Effectiveness | Hazard | Ability to Accommodate Change | Consequences on the Wastestream | Implementation Period | Facility Requirements |
| (1) Rate Structure Modifications | *** | *** | ** | *** | *** | *** |
| (2) Economic Incentives | * | *** | *** | *** | ** | *** |
| (3) Technical Assistance and Public Education | *** | *** | *** | *** | *** | *** |
| (4) Regulation Programs | ** | *** | * | * | * | *** |

Programs Selected by Category:

- (1) Quantity-based user fees
- (2) Business license fee incentives
- (3) Public education and promotion
- (4) Local procurement guidelines

| | Additional Considerations | | | |
|--|---|---------------------------|-----------------------|-------------|
| Program Alternatives | Consistency with Local Plans and Policies | Institutional Barriers | cost Effectiveness | End uses |
| (1) Rate Structure Modifications | * * * | * * | * * | N/A |
| (2) Economic Incentives | * * | * | * * | N/A |
| (3) Technical Assistance and Public Education | * * * | * * * | * * | N/A |
| (4) Regulation Programs | * * | * | * * | N/A |
| <hr/> | | | | |

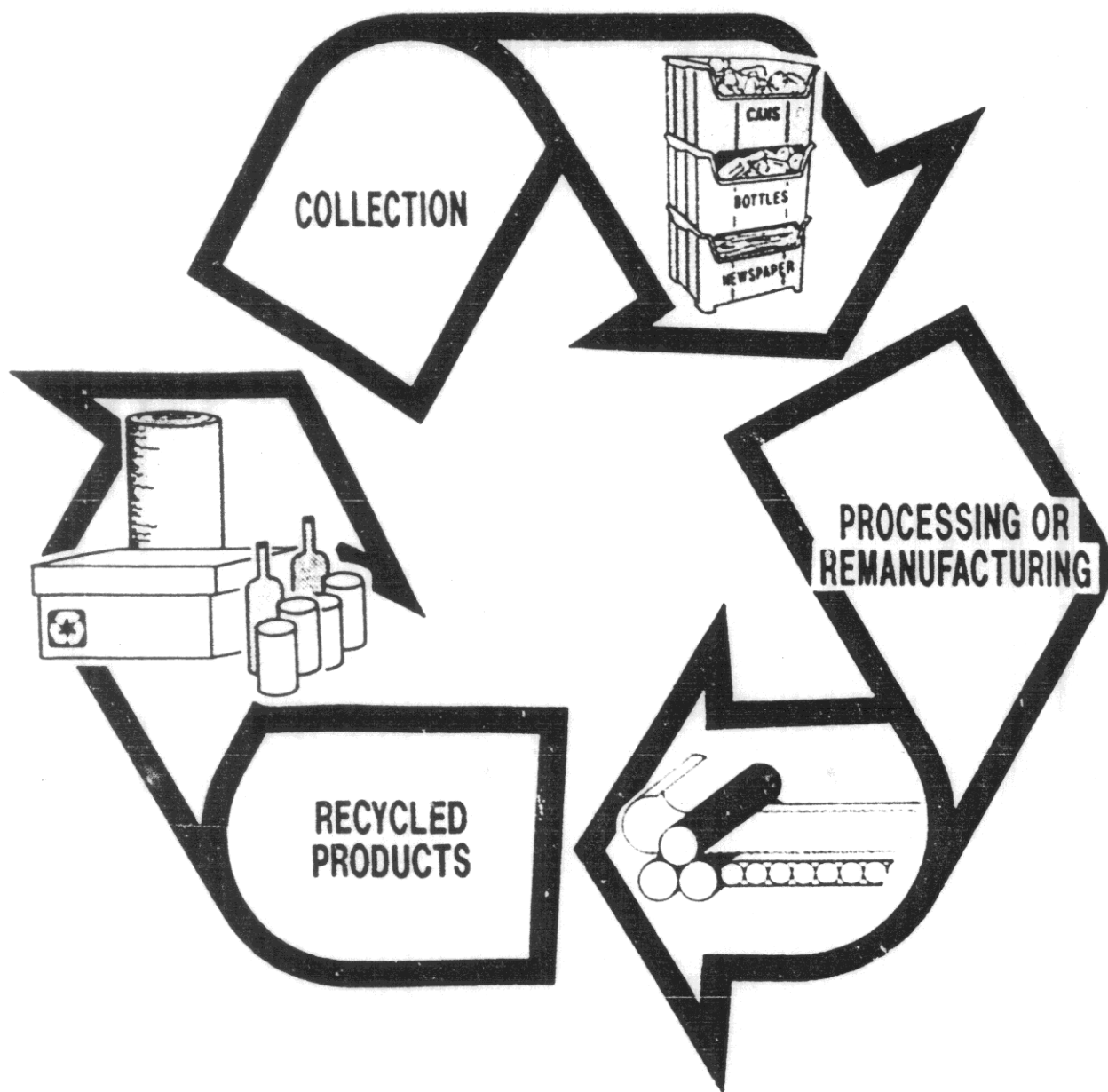
Table 3-3
Calendar of Source Reduction Tasks

| Targeted Generator | Type of Program | Implementation Tasks | Date |
|------------------------------------|---------------------------------|---|-------------|
| <u>Short-term Planning Period</u> | | | |
| Residential | Quantity-based User Fees | Determine service area; conduct a rate study; adopt through resolution and public hearing; evaluate various data collection systems; administer billing system | 1992 |
| Residential | Public Education | Develop a "junk mail" reduction pamphlet; develop a list of alternate recyclables and source reduction checklists | 1992 |
| Business | Promotion | Encourage Chamber of Commerce members to reduce their business/industry waste; establish criteria for awarding/acknowledging source reduction activities | 1992 |
| Government | Procurement Guidelines | Draft and adopt procurement guidelines; work with government agencies to implement | 1992 |
| Business | Procurement Guidelines | Request local businesses adopt purchasing guidelines; provide City's guidelines as model | 1993 |
| Business | Business Fee License Incentives | Establish implementation and administrative costs for maintaining source reduction program; determine lower percentage rates to offer source reduction participants; set base fee at appropriate rate | 1993 |
| <u>Medium-term Planning Period</u> | | | |
| All | All | Evaluate all the short-term programs for effectiveness and revise as necessary | 1995 - 1999 |

Table 3-4

Implementation Costs and Revenue Source

| Program Alternative | Capital Costs | Annual Operating costs | Total costs | Revenue Source |
|---|------------------|------------------------------|--------------------------|-------------------|
| Quantity-based Local User Fees | N/A | N/A | \$75,000 to \$150,000 | Public |
| Business License Fee Incentives | N/A | \$2,500 | \$7,000 to \$2,500 | Public |
| Public Education and Promotion ¹ | N/A | N/A | N/A | Public/Private |
| Local Procurement Guidelines ² | N/A | N/A | N/A | Public |
| Monitoring and Evaluation | N/A | \$15,000 | \$15,000 | Public |
| ¹ costs included in Public Education and Information Component (Section 7) ² costs included in Recycling Component (Section 4) "Create Local Markets for Recyclable Materials" alternative N/A = not applicable | | | | |



RECYCLING

4 RECYCLING COMPONENT

4.1 Introduction

Recycling is an age-old practice that is taking on an increasingly important role in **today's** modern solid waste management programs. This form of waste diversion helps preserve natural resources and valuable landfill disposal capacity. Recycling is defined by the National Recycling Coalition as the series of activities by which materials that would otherwise remain wastes are collected, separated, or processed and used in the form of raw materials. Recycling is defined in AB 939 (Public Resources Code 40180) as "...the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the **economic mainstream** in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace"

As stated in either definition, recycling goes far beyond merely collecting and separating postconsumer waste; in order to truly **recycle**, the materials must be remade into new products. Thus, markets are **critical** for the full recycling process to **be** complete. Accordingly, recycling planning must integrate market development with program development.

In Lodi, there are **several** programs and services which have been established and which are dedicated to the recycling of a range of materials. These programs represent the first step in recycling — separation and collection. In addition to the description of existing programs, this section includes an evaluation of recycling program alternatives, the selection of recommended alternatives, a discussion of end markets, and plans for implementing and monitoring recycling programs,

4.2 Goals and Objectives

The City has established two specific short-term goals for its recycling efforts.

1. maximize opportunities for City residents to recycle
2. foster a positive environment by creating local markets ~~for~~ recyclable materials wherever possible and practical to do so

The medium-term goal ~~for~~ the City's recycling program is to review and revise the program alternatives to meet the state-mandated goals.

The City has developed objectives to be accomplished during the short-term planning period (1991-1994) and which will be continued during the medium-term planning period (1995-1999). These objectives have been established in conjunction with the objectives in the other components of this document in order to achieve the required diversion rates of 25 percent by January 1, 1995. and 50 percent by January 1, 2000.

1. By 1992, identify Opportunities for creating local markets for recycled materials. such as establishing City procurement preferences for products containing recycled materials.
2. Require that large commercial and industrial establishments doing business within the City prepare and submit a plan ~~for~~ City review and approval by 1993. These plans should address
 - a. recycling targets to be achieved by 1995, with specific program details
 - b. incorporating recycled materials into their businesses
3. Work to influence regional or state recycling markets, or both, by encouraging local specialty markets (which could ~~serve~~ intrastate needs). By 1993, the City will investigate establishment of a recycling market development zone consistent with the requirements of SB 1322.
4. Expand existing material recovery operations by 1995 and target an additional 10 percent of the wastestream for recovery.
5. By 1994, establish a program to recover old telephone books once markets for them have been developed, or existing markets are expanded

6. By 1995. provide a recyclable material collection service to areas such as apartment complexes and other areas where it is not presently practical or feasible.
7. By 1993. adopt specific ordinances to address and encourage multifamily residential and commercial recycling opportunities in new developments.

4.3 Waste Categories Targeted for Diversion

Because of the volume of the recyclable materials found during the waste generation study and the fact that some of these materials are made of nonrenewable resources, the following materials are targeted for diversion. Many of these waste types are currently being collected through Lodi's existing recycling programs; these programs will be expanded to increase the quantities collected in some cases, or to maintain current collection levels.

- newspaper
- corrugated cardboard
- white, colored. and computer paper
- other metals
- magazines
- aluminum and bimetal cans
- plastics
- glass

4.4 Existing Conditions Description

The City's landfilled wastestream is comprised of approximately 29 percent residential waste, 17 percent commercial, 21 percent industrial, and 33 percent self-hauled waste. Section 2 summarizes diversion quantities by material for residential, commercial, and industrial waste. The current diversion rate for the City of Lodi is almost 54 percent of waste generation. If inert wastes were excluded from diversion as has been proposed in discussions at legislative committee staff meetings, the diversion rate for Lodi would be approximately 34 percent.

Several programs exist in the City for the collection of recyclable materials. These are discussed in the following pages. The existing programs are categorized by residential, nonresidential, and residential and nonresidential sectors. These programs will be continued, or expanded, during the short-term and medium-term planning periods, and none will be decreased in scope.

Recycling services and programs are offered by several entities, including Tokay Recycling, 20-20 Recycle Center, and scrap metal dealers and paper brokers in neighboring Stockton.

Quantities of ~~waste~~ diverted are summarized in the Waste Generation Component, Section 2, in aggregate form. It is not possible to disaggregate the amounts for each recycler due to confidentiality arrangements. Where it was possible to group data into programs such as buy-back or drop-off without compromising confidentiality arrangements, the data have been presented as such. See Tables 2-5, 2-6, and 2-7 in Section 2, the Waste Generation Component.

4.4.1 Residential Programs

Source separation **via curbside** collection. Curbside recycling in Lodi is currently a pilot program with 3,000 households participating. CWRs provides three color-coded recycling pails (with a total capacity of 15 gallons) for newspaper, aluminum, PET plastics, tin cans, and glass. Residents place the recyclable materials in the appropriate pail and place the pails on the curb to be picked up on a weekly basis by the recycling crew. The firm uses two recycling trucks, each containing three compartments with a total capacity of 20 cubic yards. Approximately 18 tons of residential recyclable materials are collected each week (900 tons annually).

Buy-back centers. Tokay Recycling is a buy-back/processing center located in Lodi. It accepts all materials for which there is a market, including HDPE and telephone books. Industrial and postconsumer corrugated cardboard, high-grade paper (computer printout, colored, and white ledger), newsprint, PET, HDPE, refillable beverage containers, California redemption glass, aluminum beverage cans, and scrap aluminum. Nonferrous metals (brass, copper, etc.) are also accepted.

CWRs has two California-certified redemption centers which accept newspaper, cardboard, aluminum, PET and HDPE plastics, telephone books, glass, high-grade ledger paper, and computer paper. The center receives these materials from participating "community accounts" and the general public. The center pays for the materials, at the prevailing rate, or credits the appropriate community account.

CWRs has applied for a local use permit for a recycling processing center located at South Beckman Road. This facility ~~would~~ also be the truck terminal for CWRs. Initially, it is the intent of CWRs to only operate this facil-

ity as a buy-back center, with eventual conversion to a materials processing center.

20-20 Recycle Center. The 20-20 Recycle Center Corporation has a buy-back center at the Safeway grocery store in Lodi. The center only accepts AB 2020 redemption value containers: aluminum, glass, and PET plastic.

Drop-off centers. CWRS has established 63 public use drop-off locations. Each of the 63 drop-off locations is equipped with 4-cubic-yard metal receptacles for either newspaper or cardboard and 90-gallon plastic receptacles for glass and aluminum. Members of the public also use these drop-off centers to leave their recyclable materials for pickup. These drop-off locations are located at churches, schools, businesses, and various nonprofit organizations. CWRS also collects 39 tons each week through its commercial recycling drop-off program.

Other programs. CWRS operates a "community accounts program" that allows schools, clubs, churches, and other nonprofit organizations to receive the funds from their recyclables for their organization.

4.4.2 Nonresidential Programs

Material recovery facility and transfer station. CWRS currently operates a solid waste transfer station, materials recovery facility, recycling center, and composting facility at 1333 East Turner Road, Lodi, California. The waste transfer station, as it is currently operated, can be generally described as a pit into which residential, commercial, and industrial waste hauling vehicles dump their loads (CWRS, 1991).

The refuse is sorted by content and materials that include cardboard, newspaper, plastic, cans, metal, wood, rock, garden waste, etc. The refuse is compacted and then loaded into transfer trailers where it is hauled to the nearby Harney Lane Landfill/North County Landfill and Recycling Center.

Office paper program. CWRS has established an office paper program whose goal is to reduce the quantity of recyclable, white office paper that would otherwise be disposed of. This is accomplished by the participant designating an employee as the recycling coordinator/custodian. The recycling coordinator oversees and encourages all other employees to be aware of and participate in the plan, and the recycling custodian notifies CWRS of placement and retrieval of the receptacles. All of Lodi's govern-

ment offices and the San Joaquin County-operated municipal courts located in Lodi participate in this program.

Community accounts program. CWRS has a community accounts program which is designed for participation by schools, clubs, and other non-profit organizations. CWRS supplies these organizations with a 4-cubic-yard receptacle for newspapers. When the receptacles are full, CWRS either hauls the materials to its materials recovery center and credits the participant with the prevailing cubic yard rate, or CWRS weighs the materials and credits the appropriate sum to the participants "community account."

School district program. CWRS, in cooperation with Lodi Unified School District science task force, has developed a comprehensive recycling education program. The program includes two classroom science lessons designed to teach kindergarten through eighth grade students the importance of recycling and the preservation of natural resources. Each participant is given a 'People Who Care' storybook and a certificate designating students as "Recycling Rangers."

A student assembly, designed for students from kindergarten through sixth grade, is held. Presentations at the assembly include a skit, which requires participation by ten students, and which shows how recycling newspaper saves trees from being cut down. The assembly is 25 minutes long.

In addition to these activities. CWRS provides receptacles for collection of newspapers and aluminum cans at the school site in order to raise funds for the classroom and the students.

CWRS also maintains a community account in the name of each participating school at the CWRS recycling center located at the Lodi Transfer Station. Individuals or groups may donate recyclables: the value of the recyclables is credited to a school which they may designate,

Additionally, a portion of all funds generated from the sale of recyclable materials from the curbside recycling program is contributed directly to the schools. These funds are used for field trips and extracurricular activities.

Business recycling programs. Lucky Stores in Lodi provide an excellent example of business recycling. The two Lucky Stores in Lodi, one at 530 West Lodi Avenue and the other at 340 West Kettleman Lane, both recycle cardboard, plastic bags, and food waste. Their combined totals are 378 tons of cardboard, 883 pounds of plastic, and 57 tons of food waste

(fa! and bone). Lucky also plans to begin recycling shrink wrap plastic by 1992.

Lucky Stores have developed an "Environmental Savings Plan" which is designed to encourage both customers and employees to reduce, reuse, and recycle. Lucky Stores have published a brochure to help with this effort.

There are many other businesses in Lodi that are very actively recycling and encouraging their customers to do so as well.

4.4.3 Residential and Nonresidential Programs

Materials recovery. There is a materials recovery facility, recycling center, and composting facility at the Lodi Transfer Station. Additional recovery is planned at a facility proposed by CWRS at South Beckman Road. Initially, operations will be limited to a buyback center.

"Commingled" recyclable materials are fed into a hopper using a loader from the stockpile or a rotating forklift for containerized materials. The materials fall first onto a feed conveyor and from there onto a sorting conveyor. The sorted materials include PET, HDPE, and polystyrene plastics, metals (aluminum, tin, and other miscellaneous metals), paper products (newspaper, office paper, computer paper, and cardboard), and glass (clear, green, and brown). These separated materials such as cardboard, paper products, plastics, and metals are baled (approximately 40 to 50 bales per day) and are ready to be transported to the local brokers for sale.

The firm uses a vibrating screen method to separate mixed construction and demolition waste by size, which is then sold or removed at a lower cost to the gravel companies for reuse. CWRS has indicated they intend to develop a new larger MRF in Lodi. Throughput of the new facility or the timing of permitting and construction is unknown at this time.

Wood waste is sold to companies such as Ultra Power, Diamond Walnut, Louisiana Pacific, Martel, Hessco, and Georgia Pacific, which have wood-to-energy facilities. Approximately 2,281 tons of wood waste are sent to these facilities and do not count towards the initial diversion goal for 1995.

CWRS also composts materials received from self-haulers, the local municipal leaf program, and food processing waste, including peach culls and tomato pomace. The remaining vegetable waste is used to produce

cattle feed supplements. For more information on CWRS' composting program, see Section 5. Composting Component.

4.4.4 Market Development Activities

The three local recycling companies and regional metal recyclers and paper brokers have indicated they have sufficient markets for the materials they are currently recycling. The City does not currently have any local procurement guidelines. Markets will be further developed by implementing the program alternatives described in this component,

Economic development activities include CWRS' planned MRF expansion and new facility. CWRS growth adds to the local economy by adding employment opportunities. CWRS has indicated that it has plans to hire more staff especially from the senior citizens and Hispanic community. Also, recycling more materials will allow the economic activity to grow for these products. Consumer incentives are in place in Lodi through the CWRS community accounts program.

Educational programs exist through the Lodi Unified School District, as already described. Also, CWRS and the City have other programs to educate the public. These are described in Section 7, Education and Public Information Component.

4.5 Evaluation of Program Alternatives

Lodi evaluated the following recycling alternatives that could be implemented to meet the component goals and objectives. For ease of evaluation, these have been divided into alternatives for the residential sector and those for the nonresidential sectors. Each of the alternatives is evaluated according to a set of criteria specified in the California Code of Regulations, Title 19, Division 7, Chapter 9. Program costs are approximate, and program details should be considered preliminary. Cost and program details will be refined as additional details about the specifics of each program become better known in the future.

Many of these alternatives are complementary to each other and depend upon the implementation of other alternatives, programs, or SRRE components, such as source reduction, composting, and education and public information. Where possible, these relationships have been indicated in the criteria for evaluating the alternatives. An additional consideration in evaluating the alternatives is that their effectiveness and impact need to

be considered on the basis of how several alternatives or programs will work together as a **system**, and not necessarily as alternatives that are independent of one another. Furthermore, the regulations require an evaluation of the advantages and disadvantages of public versus private ownership and operation of recycling programs.

The following ten alternatives are **evaluated** within their respective category based on the evaluation approach presented in Appendix B. **As** presented in California Code of Regulations, Title 14, Division 7, Chapter 9, Article **6.2**.Section 18733.3, the evaluation **criteria** are as follows:

- effectiveness
- hazard
- ability **to** accommodate change
- consequences on the wastestream
- implementation time constraints
- facility requirements
- consistency with local plans and policies
- institutional barriers
- estimated cost
- end uses

As structured by the regulations governing AB 939, some of the criteria by which the alternatives are required to be evaluated are positive in tone (e.g., effectiveness), while **others** are inherently negative (e.g., hazard). A high rating for a positive criterion implies a positive rating; on the other hand a high rating for a negative criterion corresponds to few **or** no impacts **associated** with this potential problem. To avoid confusion, all "high" rankings will receive three stars (★★★), 'medium' receives two stars (★★), and "low" receives one star (★). The rating results of the evaluation are summarized in Table 4-1.

Residential Alternatives

The following, which are required to be evaluated pursuant to 14 California Code of Regulations, Chapter 9 have been tailored to fit Lodi's unique situation.

Alternative 1. Develop a multifamily dwelling recycling program

Alternative 2. Curbside recycling program: expand participation and waste types collected

Alternative 3. Buy-back recycling center

Alternative 4. Mobile collection system

Alternative 5. Drop-off recycling center

Nonresidential Alternatives

Alternative 1. Expand officepaper collection to other recyclables

Alternative 2. Create local markets for recycling materials

Nonresidential and Residential Alternatives

Alternative 1. Expand CWRs materials recovery operation

Alternative 2. Salvage at solid waste facility

Alternative 3. Changes to zoning and code practices

4.5.1 Residential Alternatives

Alternative 1. Recycling Program for Multifamily Dwellings

This alternative addresses the objective of establishing programs for the collection of recyclable materials from multifamily dwellings. Multifamily dwellings typically house apartment renters, condominium and townhouse owners or renters, residents of senior citizen homes, and mobile home park residents. In Lodi, most duplexes and townhouses are considered single-family homes and are serviced by the curbside program. For this reason, these dwellings will not be considered in this alternative.

Currently in Lodi, there are no recycling programs on site at multifamily dwellings (Lodi's Draft General Plan, April 1990, Table 2-5). Out of 19,676 dwelling units, there are approximately 5,621 multifamily dwelling units in Lodi according to the 1990 census. Each residential dwelling disposes of approximately 1 ton of refuse per year. Programs should be tailored to the particular multifamily area: for instance, a senior citizen's residence will have different needs than an apartment complex.

Curbside recycling programs generally have participation rates that are higher than multifamily programs. Also, initiating a diversion program such

as a multifamily recycling program **does not** always capture 'new' recyclables since some people that used drop-off or buy-back centers will just switch to the multifamily dwelling unit program.

Multifamily dwelling units make up about 29 percent of the residential areas of the City. Multifamily dwellings are estimated to dispose of approximately 5,600 tons per year. Of this amount, approximately 18 to 19 percent can be targeted for diversion, assuming there was 100 percent participation. Since that is unlikely, participation rates of 20 and 40 percent were assumed for the short- and medium-term planning periods. This would mean that approximately 208 to 252 tons per year would be diverted in the short-term time frame and approximately 525 to 610 tons per year would be diverted in the medium-term time frame.

Effectiveness. ★★★ A recycling program for multiunit dwellings is expected to be effective in reducing the amount of targeted material(s) in the solid wastestream. Targeted materials are corrugated cardboard, newsprint, HDPE and PET plastics, all recyclable glass, redemption glass and aluminum, and ferrous metals. The success of the program will depend on how well the particular needs of each type of multiunit dwelling are considered.

Hazard. ★★ Recycling programs at multiunit dwellings present moderate hazards, which will depend on the type of program in place. For instance, broken glass or other miscellaneous items can be a problem with multibin or multicompartment systems.

Ability to accommodate change. ★★ Multiunit dwelling recycling programs are readily adaptable to changing conditions. If the program becomes too popular too fast, it could pose some logistical problems, due to lead times required for purchasing new collection containers, or overflowing containers from increased participation. In addition, the program is more readily adaptable to changing conditions if residents and multifamily dwelling managers are kept up-to-date on changes in the program, etc. This task could be accomplished by the hauler, City staff, or volunteer groups.

Consequences on the wastestream. ★★★ Multiunit dwelling recycling programs would not impact the wastestream

Implementation period. * ★★ CWRs plans to implement this alternative by 1993.

Facility requirements. ★★ Existing facilities may require expansion or alteration. Some existing multifamily facilities could have a space problem as the program grows, since space is generally at a premium. Tradeoffs may be required in order to utilize parking areas or open areas for recycling collection containers. In addition, some cities may require that garbage/recycling collection areas be enclosed, which could require changes at the site to accommodate recycling.

Consistency with local plans and policies. ★★ Minor changes to existing plans and policies would be required. These could include changes to any agreements between the City or hauler with a given multiunit dwelling with regard to its garbage collection. In addition, City policies may need to be adapted to allow for unenclosed garbage/recycling collection areas, if this is needed, and City policies currently prohibit it. Lastly, the City could require changes to zoning and building ordinances to require that recycling collection areas be built into all new multiunit developments.

Institutional barriers. ★★ Moderate barriers exist. With rental property, turnover in property managers, on-site managers, and tenants often makes it difficult to keep residents apprised about recycling programs and any changes made in these programs. However, information could be given out at the time of initial rental to tenants and during monthly rental payments. Also, the facility manager may have to give up parking or other space in order to accommodate recycling. This can be remedied with strong public education efforts.

Estimated cost. ★★ Estimated costs for CWRS to implement a multifamily dwelling recycling program for Lodi are under development and are not available at this time. Cost considerations include type of collection container, type of collection Service (e.g., door-to-door versus central locations), collection vehicle (new trucks may be needed), and labor (i.e., one- or two-person crew).

End uses. See Section 4.6.7, Market Conditions.

Public vs. private operation. This will be a private operation. CWRS has an exclusive franchise for solid waste collection in the City of Lodi. They will be responsible for implementing this alternative.

Alternative 2 **Curbside** Recycling Program: Expand Participation and Waste Types Collected

AB 939 requires cities to look at curbside source separation programs as an alternative. This alternative addresses the City's goal of maximizing opportunities for City residents to recycle but does not address any specific City recycling objectives. As described above, the City residential areas are currently being serviced with a curbside program by CWRs consistent with **CWRs'** exclusive collection franchise. **CWRs** has indicated that it will expand participation in the programs by changing from source separated to a commingled recycling system and by expanding its extensive public education program (see Section 7. Education and Public Information Component). Also, the City will require the curbside recycling program be changed from a voluntary program to a "mandatory" program where waste carts will be distributed to all single-family residents. This will result in an increase in participation rates. The existing voluntary program uses a source-separated system with three color-coded pails; white for newspaper, yellow for aluminum and tin cans, and green for glass.

CWRs' proposed new commingled system includes upgrading its collection equipment by initially implementing a two-waste cart system by January 1992. CWRs is proceeding with plans to acquire the necessary waste carts and new collection vehicles which will be financed through certificates of participation issued by the City. The City will purchase the equipment and lease it back to CWRs. One waste cart will be for refuse, and the other waste cart will be for commingled recyclable materials by 1994. These carts will be provided to all residents. The commingled system will allow for an increase in the types of materials recycled once the program is established. CWRs expects that the increased capacity of containers for recyclable materials will also encourage higher participation and waste diversion. As a cost saving measure, CWRs will utilize existing waste cart containers until they have reached their useful service life.

Approximately 14,000 tons were disposed of by single-family residents in Lodi in 1990. Thirty-seven percent are yard wastes and not divertable with the two-cart system described here. A third can for yard wastes will be addressed in Section 5, the Composting Component. Approximately 21 percent of residential wastes are divertable in the short- and medium-term planning periods (excluding yard wastes). Targeted materials are corrugated cardboard, newsprint, high-grade paper, HDPE and PET plastics, glass (refillable, redemption, and recyclable), aluminum cans, ferrous metals, and mixed metals (see Appendix C for percentages of the residential wastestream).

CWRS estimates that with universal distribution of waste carts it can capture all of the diversion potential in the medium-term time frame once the MRF is constructed and operating. For the short-term planning period, a 50 percent capture rate was assumed. Thus, in the short term, approximately 2,160 to 2,244 tons per year can be expected to be diverted beginning in 1994. For the medium-term planning period, approximately 4,664 to 5,445 tons per year can be diverted, assuming CWRS' MRF is constructed and fully operational.

Effectiveness. ★★★ This alternative would be effective in reducing solid waste.

Hazard. ★★★ This alternative presents no known hazards

Ability to accommodate change. ★★ This alternative is readily adaptable to changing conditions, especially to changes in material types, processing, and handling techniques and to changes in the waste management system and regulatory programs.

Consequences on the wastestream. ★★★ This alternative would have no known impact on the wastestream.

Implementation period. ★★★ This alternative would be implemented in 1994.

Facility requirements. ★★ Initially, this alternative would not require the development of new facilities since the Lodi Transfer Station already has material recovery capabilities. However, the MRF does need to be expanded and mechanized to a greater degree than exists at present. The MRF is discussed in a separate alternative (see Section 4.5.3, Residential and Nonresidential Alternatives).

Consistency with local plans and policies. ★★★ This alternative is consistent with local plans and policies.

Institutional barriers. ★★★ There are no known institutional barriers to implementing this alternative.

Public education efforts would be required to inform residents about the change to the commingling system from the current source separation system.

Estimated cost. ★ The cost for 13 semiautomated side loaders is estimated by CWRS to be \$1.8 million. The cost for 30,000 waste carts

required for converting to the commingled system would be approximately \$1.6 million. according to the *integrated Waste Reduction and Recycling Plan for the City of Lodi*, prepared in February 1991 by CWRS. Total costs for a two-cart system are estimated by CWRS to be approximately \$3.4 million

End uses. Recyclable materials would go to the CWRS Transfer Station/Materials Recovery Center and Recycling Facility for processing and preparation for markets (see Section 4.6.7. Market Conditions).

Public vs. private operation. The collection program would be a private operation.

Alternative 3. Buyback Recycling Centers

The City is required to evaluate a buy-back center alternative. This alternative does not specifically address any of Lodi's recycling objectives, although it may have some minor impacts on waste diversion. At CWRS' two buy-back centers, many materials can be sold (see Section 4.4. Existing Conditions Description). A buy-back center is essentially a drop-off center at which participants are paid for the materials they bring in. These materials typically include aluminum cans, newspaper, glass, metal cans, plastic (PET and HDPE), corrugated cardboard, and high-grade papers. Because of the nature of the programs, buy-back centers must have regular business hours and be staffed full time; they are often more labor intensive than drop-off centers and can require equipment not needed at drop-off centers.

Buy-back centers are currently operated by Tokay Recycling, CWRS, and 20-20 Recycle Center in Lodi. These are described above under Existing Conditions Description, Section 4.4. All are certified under AB 2020, which means the general public is paid California redemption value, as opposed to scrap value, for aluminum cans, glass, PET, and bimetal containers that are marked "California redemption value." They also accept newspaper, cardboard, high-grade lodge paper, and computer paper. The State Department of Conservation will certify a recycling center if it is open a minimum of 30 hours per week, of which 5 hours must be other than 9 a.m. to 5 p.m., Monday through Friday.

This program is not expected to divert many more recyclables from the wastestream since the City already has four recycling buy-back centers. CWRS is planning to establish a buy-back center at its proposed new

recycling processing center/truck terminal. If new centers were placed in areas more convenient for residents to use than the existing centers such as the southwest area of town, overall participation might increase somewhat. For both the short- and medium-term planning periods, diversion rates are expected to remain static and not increase since other residential programs proposed by CWRs will capture much of the residential wastestream. Buy-back centers run by Tokay Recycling, CWRs, and 20-20 Recycle Center accounted for almost 11 percent of the materials which were diverted in 1990. If inert materials are eventually excluded from "countable" diversion totals, buy-back centers accounted for 24 percent of diversion. For purposes of this SRRE, we have assumed that inert materials will remain countable. In the short-term time frame, buy-back centers will divert an estimated 8,800 to 10,250 tons per year. In the medium-term time frame, buy-back Centers will divert approximately 10,600 to 12,400 tons per year.

Effectiveness. ★ More buy-back centers would likely be ineffective in increasing diversion rates.

Hazard. ★★★ This alternative presents no known hazards.

Ability to accommodate change. ★★★ This alternative is readily adaptable to change.

Consequences on the wastestream. ★★★ This alternative presents no known impacts on the wastestream.

Implementation period. ★★★ This alternative is already in place.

Facility requirements. ★★ This alternative does not require new facilities. There are four buyback centers already operating in Lodi.

Consistency with local plans and policies. ★★★ This alternative is consistent with local plans. Buy-back programs exist currently in Lodi (see Section 4.4. Existing Conditions Description).

Institutional barriers. ★★★ None.

Estimated cost. ★★★ There are no identifiable new costs associated with this alternative.

End uses. Please see Section 4.6.7, Market Conditions. It should be noted that the quality of materials collected through buy-back programs is generally high because the facilities are usually staffed unless they are

reverse vending machines. These programs allow for a high degree of quality control.

Public vs. private operation. The four buy-back centers (plus the proposed new center) in Lodi are privately owned and operated.

Alternative 4. Mobile Collection System

A mobile collection system, by definition, is one which moves and can service more than one area. The City is required to evaluate this alternative. Establishing a mobile collection system does not specifically address any of the City's recycling objectives. Mobile systems are ideal for rural areas with low density populations. Lodi has a fairly dense urban and suburban population. There are a variety of recycling programs in place. Lodi will be served more efficiently by promoting and expanding current recycling programs.

This program is not expected to divert more recyclables from the wastestream because of the variety of existing programs which are already in place. However, if a mobile unit served areas of low income residents who may not have ready methods of transporting recyclables to buy-back centers, such as senior citizens communities, some positive results might occur. This alternative would divert no more than 300 tons per year in the short-term planning period and possibly up to 375 tons per year in the medium-term planning period.

Effectiveness. ★ Because Lodi has many recycling collection systems in place, a mobile collection system is expected to have negligible effects on reducing the amount of waste diverted. CWRs does not have any plans to implement such a program.

Hazard. ★★★ There are few or no potential hazards.

Ability to accommodate change. ★★★ This alternative is adaptable to changing conditions.

Consequences on the wastestream. ★★★ This alternative would have no impact on shifts in waste type generation.

Implementation period. ★★★ This alternative could be implemented by 1994.

Facility requirements. ★★ Existing facilities would have to be expanded or altered. A mobile collection system would require a trailer for customer

transactions and a storage area for collected materials. The storage site should be secured at night to prevent scavenging.

Consistency with local plans and policies. ★ This alternative is inconsistent with local plans, since Lodi already has an effective curbside collection program and has indicated that it intends to make curbside collection mandatory in all areas of the City. CWRS does not have any plans to implement such a program.

Institutional barriers. ★ * Lodi has many collection systems in place; establishing a mobile collection system could potentially impact the success of the existing operations.

Estimated cost. ★★ Capital costs to establish a mobile collection system are estimated to range from \$60,000 to \$80,000, depending upon specific equipment needs.

End uses. See Section 4.6.7, Market Conditions

Public vs. private operation. A mobile collection program could be operated by either a public or private entity. In Lodi's situation, the mobile collection facility, if selected, would be implemented by CWRS.

Alternative 5. Drop-off Recycling Center

The City is required to evaluate this alternative. This alternative does not address any of the City's specific recycling objectives; however, it addresses the City's goal to maximize recycling opportunities for residents of the City and increase the recovery of materials. Drop-off recycling centers range in size from "igloo" style domes and drop boxes to large centers. They require that the generator source-separate recyclable materials and take them to the drop-off site. These sites are often unstaffed, and must be conveniently located and easily accessible in order to be successful. For this reason, drop-off recycling centers are generally located in parking lots of grocery stores, shopping centers, churches, or schools. Participation tends to be higher in rural areas where generators bring their refuse to a central location. Drop-off recycling centers can make recycling more convenient for persons who do not have curbside service and also provide a back-up for those who have curbside service. CWRS maintains 63 drop-off locations at schools, churches, and nonprofit organizations of the City (see Section 4.4, Existing Conditions Description). This equates to one drop-off center per 823 residents. CWRS also provides drop-off locations for commercial/industrial use within the City.

This program would not have a significant effect on the City's diversion rates because of CWRs' many drop-off facilities already in place throughout the City. CWRs' drop-off facilities account for over 3 percent of diverted materials in Lodi. This diversion rate is not expected to increase substantially. In the short term, approximately 2,645 tons per year will be diverted by drop-off programs. During the medium-term time frame, approximately 3,340 tons per year will be diverted by CWRs' drop-off programs.

Effectiveness. ★★ Additional drop-off recycling centers in Lodi would have a minor effect on increasing the diversion of targeted materials. Given the fact that Lodi has a curbside program in place, and that several drop-off/buy-back opportunities exist for residents (see Section 4.4. Existing Conditions Description), additional drop-off programs are not expected to be highly effective. For the small volume businesses (e.g., in downtown Lodi), however, drop-off Centers may be effective: this depends on whether they are part of a larger program.

Hazard. ★★ Drop-off recycling centers present moderate hazards. Because these sites are often unstaffed, they can become 'dump sites' for refuse. As a result, potential hazards include broken glass or other debris around the drop-off containers. For the safety of the users, sites need to be well lighted and have adjacent parking.

Ability to accommodate change. ★★ Drop-off recycling centers are moderately flexible, in that material types can be added quickly as new markets develop. Contamination of materials can be a problem at drop-off sites.

Consequences on the wastestream. ★★ Adding drop-off recycling centers in Lodi would have a minimal impact on the wastestream in terms of substantially increasing diversion. The potential for contamination of materials could render these materials less marketable.

Implementation period. ★★★ This alternative could be implemented in the short-term planning period.

Facility requirements. * Drop-off centers would have to be built or set up in designated sites. Considerations include a central, accessible site; protection from weather (i.e., to keep Paper dry); plenty of storage area for materials; good vehicle access (for both Collection trucks and the public) and security (i.e., locked containers).

Consistency with local plans and policies. ★★★ Drop-off recycling centers are consistent with City policies when located within property zoned areas.

Institutional barriers. ★ Oftentimes grocery stores, other stores, and property owners are not happy with the idea of a drop-off bin in their parking lot, primarily due to the mess that can result if these drop-off areas become dump sites. For this reason, the drop-off program could not operate in those locations without the store's and property owner's approval and cooperation.

Estimated cost. ★★ Depends on the type of drop-off center selected. Costs could be anywhere from \$1,000 to \$5,000 per center.

End uses. Please see Section 4.6.7, Market Conditions.

Public vs. private operation. Drop-off recycling centers can be owned and operated by either public agencies, or private nonprofit or for-profit entities. Because of the City's franchise arrangement with CWRs, CWRs would be the one to operate any drop-off collection site.

4.5.2 Nonresidential Alternatives

Alternative 1. Expand Office Paper Collection to Other Recyclable Materials

The City's objective to require large commercial and industrial establishments to prepare and submit recycling plans would be satisfied by this alternative. The CWRs office paper collection program (described in Section 4.4) establishes a recycling coordinator to oversee and encourage all other employees to be aware of and participate in the plan. This alternative would require (1) large businesses to develop recycling goals to be achieved by 1995 with specific program details and (2) businesses to use recycled materials whenever feasible. To develop these plans, the recycling coordinator concept would be expanded and strengthened to include the other materials which each business has targeted for recycling. The City has implemented a government office paper recycling program that began in the summer of 1991. It is anticipated that this program will divert 12 tons per year in the short-term time frame and 24 tons per year in the medium-term time frame. The County government offices within the City are also participating in this program. Targeted materials in the short-term planning period for an expanded program include high-grade computer

and ledger papers, corrugated cardboard, newsprint.. film plastics, ferrous metals, and wood. In the medium-term time frame. mixed paper and textiles could potentially be added to the program.

This program could be effective since it targets those businesses already interested in recycling. By providing more services to those businesses already involved. the efficiency of the recycling effort can be improved. Efforts by the collector are thus minimized and costs saved. As the program expands, more local businesses and industries will be encouraged to participate as they see how the program works. In the short term, approximately 480 tons per year could be diverted. In the medium term, approximately 1,000 tons per year could be diverted.

Effectiveness. ★★★ This alternative would be effective in reducing solid waste.

Hazard. ★★★ This alternative presents no known hazard.

Ability to accommodate change. ★★ More collection containers, etc., can be added as the program grows. One impact on this alternative's ability to accommodate change would be a change in the markets for the various paper grades and scrap metals.

Consequences on the wastestream. ★★★ This alternative will not impact the wastestream.

Implementation period. ★★★ This alternative could be implemented in the short-term time frame since businesses are willing to implement this program.

Facility requirements- ★★ This alternative might require modifications to existing facilities. City and business facilities may have to be slightly modified to accommodate recycling bins, etc.

Consistency with local plans and policies. ★★★ This alternative is consistent with City plans.

Institutional barriers. ★★★ There are no institutional barriers to implementing this program.

Estimated cost. ★★★ CWRS estimates that costs will increase with the program's expansion due to a need for more collection containers and increased manpower requirements. CWRS estimates costs could range anywhere from \$6,000 to \$24,000 per year.

End uses. See Section 4.6.7, Market Conditions.

Public vs. private operation. The administration of the program could be undertaken by the City to ensure that businesses develop goals and plans for recycling. Collection would be handled by CWRS consistent with its exclusive collection franchise in the City. However, the most likely scenario would be to have CWRS administer the entire program.

Alternative 2 Create Local Markets for Recyclable Materials

This alternative addresses the city's recycling objective to identify opportunities for creating local markets for recycled materials. Several options for market development for recycled materials that are outlined in the section entitled "objectives" are available to the City. These options include participation in statewide efforts sponsored by the California Integrated Waste Management Board; establishment of recycling market development zones as discussed in Section 4.5.3, Alternative 3; City procurement policies to encourage the City's use of recycled goods; and use of public education and information programs to promote the use of products using recycled materials. The CIWMB has a material exchange program called CALMAX that could also be helped with creating local markets. This program lists waste materials that are available and those that are wanted throughout California. The list is similar to a classified ad and is free. This alternative will focus on the establishment of procurement guidelines for the City. Public education efforts are covered in a separate component.

The City will develop procurement guidelines which encourage use of recycled materials or such criteria as durability, recyclability, reusability, and recycled material content. Additionally, the City could specify that any business or organization holding a contract with the jurisdiction would have to have a recycling program in place and provide products or materials according to the above criteria. The City could adopt purchasing preferences and establish set-asides for recycled products or products with an established percentage of recycled material content. Local procurement guidelines for source reduction and recycling could be combined to save costs to the City and ease the implementation process. Thus, cost estimates for this alternative include the costs for developing local source reduction procurement guidelines. For example, the City could require all City departments to use CWRS' compost for their landscaping. Another

example is that the City offers a 5 percent preference for the purchase of goods with recycled content.

Requiring recycling activities by regulation is a viable alternative; although voluntary participation in Lodi works almost as well to obtain results and is easier to implement. In the short-term time frame, approximately 2 to 5 tons might be diverted. In the medium term, approximately 7 tons per year may be diverted via procurement regulations.

Effectiveness. ★★ The effectiveness of a procurement program would depend on the materials targeted and the impact of the jurisdiction's purchasing power on the local and regional markets for those materials.

Hazard. ★★★ This alternative presents no major hazards.

Ability to accommodate change. ★★ Procurement policies are fairly flexible and can accommodate new circumstances in recycling techniques and processes as well as to changes in local recycling markets, programs, and regulations. Procurement programs may be adapted to new products and markets for recycled materials. However, any change in the City's procurement policy would require review and approval by the City Council.

Consequences to the wastestream. ★★ Effective market development through such measures as procurement programs could lead to increased quantities of materials in the wastestream that have a higher content of recycled material than presently exist.

Implementation period. ★★ Procurement programs can be implemented in the short-term time period. However, the City may wish to allow a period of time for governmental consumers, producers, and suppliers of products to adjust to the effects of the procurement program. In addition, implementing a procurement program over a longer time frame may allow for the opportunity to pursue this alternative in conjunction with neighboring jurisdictions. However, this program would have to undergo local approval.

Facility needs. ★★★ There are no facility requirements for this alternative.

Consistency with local plans and policies. ★★★ This alternative does not pose any conflict with current plans, policies, and ordinances for the City regarding low-bid purchasing.

Institutional barriers. ★★ Purchasing and procurement programs for all City agencies will have to be coordinated in order to achieve Citywide

impact from a procurement program. While purchasing and procurement itself is often centralized within the City's operations, the individual agencies receiving or consuming the goods and services purchased must agree to any aspects of their purchase requests that would differ from normal specifications.

Estimated cost. ★★★ Costs for a procurement program include resources from the City for developing, implementing, administering, and monitoring the program. Furthermore, each of the programs would involve costs associated with the local approval process. The costs to suppliers associated with a procurement program are unknown. Additionally, there are potentially unknown costs connected with a procurement program in that suitable products meeting source reduction requirements (and therefore identified as viable substitutes for products normally purchased) might be more expensive. This would inflate the costs of procuring these items. The total cost to the City to prepare procurement guidelines is estimated to range from \$7,000 to \$10,000; this includes the cost to prepare local procurement guidelines discussed in the source reduction component.

End uses. See Section 4.6.7, Market Conditions.

Public vs. private operation. Not applicable. This is intended to be a public operation.

4.5.3 Residential *and* Nonresidential Alternative

Alternative 1. Expand CWRs Material Recovery Operation

This alternative addresses the required alternatives of manual materials recovery and mechanical materials recovery. This alternative meets the City's objective of expanding CWRs' existing materials recovery operation. Manual and mechanized material recovery operations are very similar to each other in function, with some differences in capital investment, facility size, equipment, and operating costs. Both types of facilities involve sorting loads of waste in order to recover recyclable materials. The objective of these operations is to receive recyclable materials, remove the contaminants, and prepare the materials for transportation to markets. Both manual and mechanized recovery facilities allow materials to be recovered from mixed waste loads, which increases the types of materials recovered through established commercial/industrial programs. The processing capabilities of both of these types of recovery operation allow communities

to establish comprehensive integrated recycling programs that are cost effective.

Manual MRFs are designed for the collection, processing, and marketing of recyclable materials. A manual recovery facility will accept incoming loads to be tipped either onto a pad or into a hopper. The wastestream is then sorted and separated by hand, usually as it travels along a conveyor belt system. Mechanized MRFs are very similar in design and operation to manual facilities except that the conveyor system is equipped with a series of mechanical processors that assist in the wastestream segregation. Although separation and recovery is achieved through mechanical means, a portion of material is often still recovered manually by the facility operators.

CWRS has a MRF, recycling center, and composting facility in Lodi. It was described in Section 4.4 above. **CWRS** plans to expand its existing materials recovery operation into a state-of-the-art materials recovery system to enhance the ability of **CWRS** to segregate and process various types of recyclable materials. This program will also allow some of the recovery operations that are currently being performed outdoors to be accomplished indoors. At this time, CWRS is pursuing the establishment of this program at a location on South Beckman Road, which would serve as the firm's truck center. An application for a use permit has been submitted (see Appendix E). An environmental impact report (EIR) prepared for the expansion deals only with expansion onto an adjacent piece of property. New locations not addressed in the present draft EIR will either require a supplemental EIR or other environmental review.

- enclose tipping floor and processing area (89,000 square feet)
- new recyclable materials warehousing facility (21,000 square feet)
- additional 5.55 acres area for composting operations, container storage, and truck parking
- upgrading and expanding permit requirements to 2,000 tons per day
- accommodate compost processing of yard and garden waste to 49,000 tons per year

- purchase of new collection and processing equipment
- expansion of existing administrative complex

The previously mentioned programs will help separate many types of recyclables out of the wastestream. However, CWRS' mechanized MRF will sort the nonseparated refuse and thus divert more recyclables from disposal. Actual implementation of this alternative will occur in the medium-term planning period to allow for sufficient time for environmental review, local use permits, state solid waste facility permits, and permits from the Regional Water Quality Control Board. It should be noted that the composting operation within the MRF will require a separate solid waste facility permit from the CIWMB and a separate permit from the Regional Water Quality Control Board.

Effectiveness. ★★★ This alternative will be effective in diverting targeted material(s) in the solid wastestream.

All materials diverted through the programs described in this component, which would be undertaken by CWRS, would be processed through the MRF. Those diversion amounts for residential wastes have already been discussed and are not addressed here to avoid double counting. The diversion percentages here refer only to commercial and industrial wastes. According to Dave Vaccarezza, President of CWRS, their MRF will be capable of diverting nearly 50 percent of the wastestream from the landfill. For purposes of this SRRE, a more conservative estimate is used as discussed below.

Since it is presumed that the MRF expansion will be completed and implemented by the medium-term time frame, no additional diversion is anticipated beyond what is already occurring for the short term. In the medium term, approximately 4.064 additional tons per year of wastes (excluding compostables) could be diverted with this alternative.

Hazard. ★★ This alternative presents moderate hazards. These include the possibility of fire and explosion from any shredder operations and the possibility of explosion from compacting the residual load. Because some of the materials collected are combustible, there is a minor fire hazard associated with their storage. There are also health risks associated with manual sorting of refuse.

Ability to accommodate change. ★★★ The CWRS Transfer Station/Materials Recovery Facility and Recycling Center is readily adaptable to changing conditions, and should have the capacity to process a much greater quantity of waste than at present.

Consequences on the wastestream. ★★★ This alternative does not impact the generation of wastes.

Implementation period. ★★★ CWRS plans to expand its facilities by 1992. However, environmental review and permitting time lines will likely mean this alternative is implemented during the medium-term time frame.

Facility requirements. ★★ CWRS will need to design the MRF and **composting** facilities and acquire the necessary site permits and permits to operate from the CIWMB, Regional Water Quality Control Board, and possibly the local air pollution control district as well.

Consistency with local plans and policies. ★★★ The MRF is consistent with local plans and policies.

Institutional **barriers**. ★★ The MRF cannot expand its capacity without first completing the necessary environmental review and local use permit processes. Then the MRF and **composting facilities** must be permitted separately by the CIWMB and Regional Water Quality Control Board.

Estimated cost. ★ CWRS estimates the cost of expansion of the MRF for processing Lodi's recyclable materials will be approximately \$9.2 million, which has been previously described.

End uses. See Section 4.6.7, Market Conditions.

Public vs. private operation. The CWRS' Transfer Station/Resource Recovery Facility and Recycling Center expansion will be privately owned and operated by CWRS.

Alternative 2 Salvage at **Solid** Waste Facility

Under AB 939, the City is required to evaluate this **alternative**.

Salvage at solid waste facilities involves the recovery of materials from loads that are left at a designated site, such as a landfill or transfer station. Public salvaging in Lodi will continue to be strictly prohibited. This type of activity is very similar to a manual materials recovery operation, although generally under more open and less controlled conditions. Salvaging also often differs from MRFs in **the** waste types separated. Salvaging may

occur in a designated area prior to unloading as well as at the tipping face of the landfill or transfer station. These loads are often from uncompacted commercial debris boxes or self-hauled loads. This program, sometimes referred to as a 'dump-and-pick' operation, could be **instituted** at one or more of the landfills serving the jurisdiction. A cement pad for sorting the materials is preferable, though not required, for this type of an operation. A cement pad would require a dedicated picking area. Salvage at solid waste facilities is usually restricted to clearly identifiable loads of specific items such as metals, white goods, wood waste, mattresses, as well as glass, plastics, and metal beverage containers. In addition, high concentration loads of construction debris, soil, concrete, and asphalt are often diverted to a separate tipping area for recovery. Loads subject to **salvage** at solid waste facilities include residential, commercial, industrial, and self-haul loads.

Since CWRs already has an **MRF** and plans to expand its facility, salvaging at the transfer/materials recovery station would be redundant and would significantly impact CWRs operations. However, salvaging at the County landfill for white goods, tires, scrap metal, yard waste, wood, and other easily separated waste may be effective. However, San Joaquin County plans to construct an **MRF** at the North County Landfill and Recycling Center where Lodi's solid waste goes now that the Harney Lane Landfill is closed. Thus, salvaging would only be effective in the short term since by the medium term both the CWRs' and San Joaquin County's **MRFs** should be fully operational. In the short term, salvaging is estimated to divert about 1,100 tons per year in the short term. Because both MRFs, which will be located in northern San Joaquin County, will be operational by the medium term, no diversion is expected in the medium term time frame.

Effectiveness. ★★ This alternative is somewhat effective in diverting selected material. However, since CWRs is planning to **expand** its MRF and the County will be constructing an MRF to serve northern San Joaquin County, salvaging is not considered an efficient alternative.

Hazard. ★★ Workers may be at risk due to refuse collection trucks coming in and out regularly and from working around large, moving equipment, such as loaders, dozers, and compactors. Also, hazards could arise from workers' exposure to potentially hazardous materials in the waste.

Ability to accommodate change. ★★ Salvaging at disposal or transfer facilities is moderately adaptable to change.

Consequences to the wastestream. ★★★ This alternative has no known impact on shifts in waste generation.

Implementation period. ★★★ This alternative could be implemented in the short-term planning period.

Facility requirements. ★★★ This alternative can usually be integrated into existing facilities.

Consistency with local plans and policies. ★★ This alternative is not consistent with local plans and policies since CWRS already has an MRF which it intends to expand, and the County is also constructing an MRF to serve northern San Joaquin County.

Institutional **barriers**. ★ Disposal or transfer facility permits may presently prohibit salvaging. These permits would have to be revised in order to incorporate salvaging. Permit revisions including environmental review can take 6 months to 1 year or more. However, the alternative can be implemented in the short-term planning period. Also, the planned County's and CWRS' MRFs conflict with implementing a salvaging program, especially in the medium term when the MRFs will be firmly established.

Estimated cost. ★★★ Costs for this alternative are estimated to be \$5,000 to \$10,000.

End uses. See Section 4.6.7, Market Conditions.

Public vs. private operation. This alternative could be a public/private operation.

Alternative 3. Changes Local Zoning and Building Codes

The City will explore a number of options to promote recycling activities through regulatory approaches such as zoning, land use, and building code requirements. Revisions to zoning and building code requirements include a zoning ordinance that would require all new land development projects to plan and provide for recycling needs in building and site design, with the exception of single-family homes. Land use and development requirements involve establishing incentives and disincentives to land use and development that promote recycling. These include requirements that

an entity could not open a new business, relocate an old one, or build or otherwise develop property for commercial or residential purposes without presenting a plan describing the types and quantities of waste that would be added to the wastestream. The plan would require descriptions of programs to be implemented to encourage materials separation and recycling at the developed area. In addition, the City could identify recycling specifically in local codes for allowable land uses for a given zone.

The City is also aware of the recycling market development zones established under SB 1322 and is considering this option. A community that has a designated zone offers state and local government incentives to draw to that community industries that use postconsumer waste as the feedstock in their manufacturing processes. Zones will help stimulate economic development in communities by increasing jobs and increasing the tax base.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

Requiring recycling activities by regulation is a viable alternative although voluntary participation often works as well to obtain results and is easier to implement. Diversion rates for this alternative are addressed in the multi-family alternative and the local markets alternative discussed earlier in this component.

Effectiveness. ★★ The effectiveness of these regulatory programs would depend on the level of change implied by the regulations imposed by the City, the materials targeted, adherence to the regulations by the community, and the level of enforcement.

Hazard. ★★★ There are no environmental hazards associated with these regulatory programs, although hazards from incompatible land uses could result if some restrictions were not applied to the types of facilities allowed to be located in zoned areas.

Ability to accommodate change. ★★ The regulatory measures outlined in this alternative are all fairly flexible and can readily accommodate to new circumstances in recycling techniques and recovery processes as well as to changes in local recycling programs and regulations. These programs can adapt to new types of materials and products as well as to changes in the wastestream due to generator behavior.

Consequences to the wastestream. ★★★ This alternative has no known impact on shifts in waste generation.

Implementation period. ★★ Regulatory programs, such as zoning, building code, and land-use requirements can all be implemented in the short-term time period. Lodi plans to implement this alternative by 1992. However, communities usually allow a period of time for residential and nonresidential generators to adjust to the effects of the new requirements. In addition, implementing programs such as these over a longer time frame may allow for the opportunity to pursue this alternative in conjunction with neighboring jurisdictions. Each of the regulatory programs outlined in this alternative would have to undergo an approval process as well as anticipated resistance by generators to any further regulation by the City. The complexity of, and opposition to, these programs may preclude their implementation in the short- and perhaps medium-term time frames.

Facility needs. ★★★ There are no facility requirements for this alternative.

Consistency with local plans and policies. ★★★ This alternative is consistent with both alternatives (expanding office paper collection to other recyclables and creating local markets for recycling materials) presented for nonresidential areas. Both of these alternatives are designed to increase commercial recycling.

Institutional barriers. ★★ Institutional barriers to this alternative involve potential conflicts within the jurisdiction between City agencies responsible for implementing effective waste management programs designed to meet the requirements of AB 939 and City agencies responsible for regulating building construction and site development. New regulatory requirements for residential and commercial areas within the jurisdiction could be an impediment to attracting new growth and investment in the community, especially if similar restrictions are absent in neighboring jurisdictions.

Estimated cost. ★★★ Costs for regulatory programs depend primarily on the level of regulatory programs that the City chooses to pursue. Each of the programs outlined in this alternative would require resources from the City for developing, administering, implementing, monitoring, and enforcing the program. Furthermore, each of the programs would involve costs associated with legal fees and staffing incurred during the approval process. Total costs to the City are estimated to range from \$7,000 to

\$10,000 with annual administration costs of \$5,000. The costs to the private sector of the regulatory programs outlined in this alternative are unknown.

End uses. See Section 4.6.7. Market Conditions

Public vs. private **operation**. Not applicable.

4.5.4 Other Program Considerations

Solid waste **disposal** rate structure. This plan recommends that the rate structure be modified **as** proposed by CWRS to encourage recycling and composting in Lodi (see Section 3, Source Reduction Component). CWRS recommends the City modify its **rate** structure by replacing the current declining rate structure with its proposed inclining rate structure. CWRS is presently **developing** a proposal **for** an inverted rate structure for the City's review and consideration. CWRS maintains that an inclining rate structure will encourage people to recycle because the cost of an additional refuse container will cost substantially more than the first container.

4.6 Selection of a Program

In the previous section, a number of alternatives were presented and discussed. Each alternative was evaluated qualitatively according to a range of criteria. In this section, the City presents the results of the qualitative evaluation of the alternatives presented in the previous section. To accomplish this, the City has applied an assessment of **whether** or not each alternative is appropriate to the City's needs and assigned each alternative a ranking in order to select various alternatives. In selecting among alternatives, the City considered the following critical factors: (1) the degree to which each alternative is appropriate to the conditions of the jurisdiction (i.e., goals, objectives, **policy** environment, wastestream, and solid waste management system) and (2) the degree to which the alternatives complement each other and form a coherent, comprehensive, and **cost-effective** package. Alternatives were **assigned** ratings of high, medium, and low according to **the** assessment of their evaluation criteria. To avoid confusion, high was given three stars (★★★), medium two stars (★★), and low one star (★). The results of these ratings are presented in Table 4-1.

Lodi's current recycling programs will continue: the programs selected and listed below are either new programs or additions to successful existing

programs. The selection of programs was based on the evaluation criteria and the ease of implementation in the City.

Based on the results of the above evaluation and assessment, the alternatives selected to meet the goals and objectives of this component in the short-term and medium-term planning periods are presented below.

4.6.1 Alternatives Selected

Short-term Planning Period

This section addresses new programs which will be implemented to augment existing recycling programs. The programs selected to reduce the amount of waste being landfilled or incinerated during the short-term planning period include

Residential Alternatives

- Recycling program for multifamily dwellings

Multifamily dwellings make up a significant portion of Lodi's population that should have easily accessible, on-site recycling opportunities available.

- Expansion of CWRs' curbside recycling program

Most of the City is serviced by curbside, and it is a goal of the City to maximize opportunities for City residents to recycle. CWRs will change from a volunteer source-separation recycling program to a system-wide commingled program. The new system will provide all residents with waste carts. Commingled operations have been shown to have higher success rates than source separated programs. Also making recycling available to all residences will increase participation.

Coupled with this program is an inclining rate structure also proposed by CWRs, which will make the unit cost to subscribe to an additional waste cart substantially more than the first waste cart. CWRs believes that a properly structured inclining rate system will encourage residents to recycle. The City will need to evaluate whether or not it wishes to adopt such a rate structure.

Nonresidential Alternatives

- Expand office paper collection to other recyclables

Office paper is currently being collected at the Lodi City offices. The City would like to expand the program to other businesses and industries and to increase the type of materials which are collected. Using the existing program to expand the recycling efforts of businesses throughout the city is a viable method to increase solid waste diversion rates.

- Create local markets for recycled materials

Once the City adopts procurement guidelines *for* its own use, these guidelines could be used to establish a model for City businesses to follow. Encouraging businesses to buy recycled will expand local markets for recycled goods.

Nonresidential and Residential Alternatives

- Expand CWRs material recovery operation

Expanding CWRs material recovery facility makes it possible to collect a greater percentage of recyclable materials and properly process them, which is critical for meeting market specifications for recovered materials.

- Develop zoning and code amendments

Developing zoning and code amendments to require recycling activities to be considered in new developments should make recycling easier for businesses and residents. This alternative includes the development of recycling market development zones established under SB 1322.

4.6.2 Quantities and Types of Wastes Anticipated to be Diverted

See Section 2.7.3 for targeted waste types to be diverted by recycling. The recycling programs selected are expected to divert the following from Lodi's wastestream:

Recycling program for **multifamily** dwellings

Short term: 252 tons per year
Medium term: 610 tons per year

Expand CWRs curbside recycling program

Short term: **2.244** tons per year
Medium term: 5.445 tons per year

Expand office paper collection to other recyclables

Short term: 480 tons per year
Medium term: 1,000 tons per year

Create local markets for recycled **materials**

Short term: 5 tons per year
Medium term: 10 tons per year

Expand CWRs' existing material recovery **operation**

Short term: Not Applicable
Medium term: 4.064 tons per year

Develop zoning and code amendments

Included in previous alternatives

Total **Diversi**on from new recycling programs

Short term: 2,981 tons per year
Medium term: 11,129 tons per year

Total diversion from existing programs (buy-back, drop-off, curbside collection and **inert**)

Short term: 75,076 tons per year
Medium term: 82,890 tons per year

Total anticipated diversion from **all** recycling programs

Short term: 78,057 tons per year
Medium term: 94,019 tons per year

4.6.3 End Markets, End Uses, and Back-up Markets for Diverted Materials

See Section 4.6.7, Market Conditions.

4.6.4 Materials Handling and Disposal Needs

Source separation, per discussions with CIWM staff is one of the best methods to preserve the integrity of recovered materials. However, commingled systems can help prevent breakage of glass containers by the plastics and aluminum "cushioning" the glass. Less breakage is desirable because of sorting needs and possible nonrecyclable glass is harder to detect in loads with broken glass.

465 Facility Requirements

Short-term Planning Period

Multifamily dwellings recycling program

No facilities required, but modification or construction of existing structures or enclosures, or both, might be required.

Expand office paper collection to other recyclables

No new facilities needed. Would require bins or waste carts as applicable for each business.

Curbside recycling program: expand participation and waste types col-

Would require the purchase of 13 semiautomated side loaders and 46,000 waste carts and eventual expansion of the CWRS transfer station, materials recovery facility, recycling center, and composting facility.

Create local markets for recycling materials

No new facilities required.

Expand material recovery operation

- one 70-foot scale system
- forklift, 5,000 pounds

- receptacles
- recyclable warehouse
- on-site improvements per EIR
- construction of MRF
- platform scale
- picker/sorter
- storage bunkers
- one composting turner
- composting facility
- grinder
- loader #1 and #2
- equipment shelter

Zoning and code ordinance amendments

No new **facilities** required.

4.6.6 Identification of Measures to be Taken if Requirements Cannot be Met

In the event of unfavorable market conditions which could prevent the City from meeting its diversion goals, the City plans to employ the following measures:

- pooling resources with other cities or counties in order to market materials cooperatively
- investigating the existing collection and processing activities to be sure that materials are being prepared **properly** to meet buyer's specifications
- investigating opportunities to utilize postconsumer recycled materials for in-City manufacturing
- conducting broad research to locate markets or end uses not previously found, both on a local level and beyond

4.6.7 Market Conditions

Recycling requires more than the separation and collection of materials; viable markets must exist for the recovered materials. This section addresses the existing market conditions relevant to Lodi, as well as on a broader scale (e.g., regional, statewide, national, and international). The focus is on those materials most often collected through recycling programs, such as various paper grades, plastics, metals, and glass. In addition, Lodi is aware of the recycling market development zones established under SB 1322 and will consider this option in conjunction with Stockton, Galt, and other local jurisdictions. Many resources exist which identify local markets for different materials; most of these are in the form of lists compiled by entities such as the California Department of Conservation and the CIWMB. For this reason, only highlights are addressed in this section. In addition, the Department of Conservation is in the process of preparing a statewide database called *Market Watch*, which will be fully operational in approximately 9 to 12 months and will include information on markets in California, among other things.

Lodi is in the fortunate position of being able to take advantage of the contracts CWRs has established with various processors nationwide, which amounts to virtually guaranteed markets for many waste types; some of these are included in the following discussion.

Old newspaper (ONP). Old newspaper is the main grade of waste paper collected in the residential sector. A number of other ONP markets are available in northern California. Currently, the amount of ONP that is available nationwide for recycling far exceeds the demand. However, this situation is expected to change. It is estimated that the demand for ONP will almost double by 1995 due to increases in exports of ONP, increases in the paperboard market, and other factors.

Because ONP is contaminated with printing inks, it is necessary to de-ink this raw material before it can be recycled for certain uses. The primary reason for excess ONP is the shortage of newsprint facilities that can de-ink the newspaper or reuse it. The de-inking capacity in the United States is expected to increase in the future to meet the anticipated demand and help balance the market.

End uses for ONP include newsprint, insulation, packing, building materials, and animal bedding. Newsprint manufacture is anticipated to be the

largest market for ONP and is anticipated to increase significantly through the year 2000. Other end uses are anticipated to increase only marginally.

The market price for ONP is cyclical due to decreased collection in the winter months, paper mill shutdown for maintenance repair in the summer months, economic conditions, international exchange rates, and other factors. CWRS currently has a contract with Weyerhaeuser Paper Company (Weyerhaeuser) for newspaper.

Old magazines (OMG). A new market is emerging for OMG; many newspaper recycling mills plan to use OMG in the production of newsprint. This will result in a lowered demand--until more newspaper recycling opportunities emerge in the next couple of years for ONP. **OMG** is now being used in newspaper recycling mills due to their conversion from a simple wash process to a flotation process of de-inking. The Smurfit Companies have converted to flotation de-inking and can utilize supplies of **OMG**. The current price paid is \$20 per ton; a higher price can be negotiated based on volume. The main requirement for preparation of the magazines is that they be loose--not bagged or tied with string.

High-grade wastepaper. High-grade paper is a general description of various long-fiber grades of paper. High-grade paper includes white ledger, colored ledger, computer paper, and tab cards. These grades are more valuable for recycling because of their strength, and thus command a higher price than other paper grades.

Market prices for high-grade paper are dependent on the price of pulp. Because high-grade wastepaper is often used as a substitute for pulp, high-grade paper prices tend to **fall** with the price of pulp. The market prices for different paper grades vary independently. However, the market price for higher grades are generally more stable than that paid for lower grades. The higher the degree of separation from the source, the higher the price paid for the paper. High-grade paper can be used in making writing paper, computer paper, napkins, facial tissues, and paper towels. CWRS has a contract with Weyerhaeuser for high-grade wastepaper.

Paperboard. The Newark Group is a national producer of recycled paperboard made from a variety of paper and paperboard grades. The company produces uncoated boxboard, specialty paperboard, tube stock, coated boxboard, gypsum liner, corrugated medium, and other paperboard. The company has locations throughout the United States; the nearest to Lodi is in Stockton.

Mixed wastepaper. As implied in its name, mixed paper refers to a paper stream containing more than one grade of paper. Mixed paper is defined in AB 939 as a mixture, unsegregated by color or quality, of at least two of the following paper wastes: newspaper, corrugated cardboard, office paper, computer paper, white paper, coated paper stock, or other paper. The housing, industry and the value of the United States dollar overseas greatly affect the demand for wastepaper. A strong dollar overseas means a decrease in the demand for wastepaper. Secondary markets for recovered paper can be found in the United States and abroad. Mixed paper export has increased significantly and has allowed for growth in mixed paper recycling, particularly in the western United States. Local domestic markets, however, are fairly well saturated. Other markets need to be identified in order for recycling of mixed paper to be feasible in Lodi.

The primary use of wastepaper is in the manufacture of combination boxboard which is used to make boxes for shoes, clothing, and dry foods. Other uses for mixed wastepaper include the manufacture of roofing felt and construction paper building materials.

Old corrugated containers (OCC). The amount of OCC consumed in the United States is significant, approximately 15 million tons per year, due to its use in shipping packaging for most consumer products. The quantity of OCC in the wastestream is greater in the commercial sector than in the residential sector. OCC that has been separated properly can be used in the manufacture of new corrugated containers, cereal boxes, pad bases, and wallboard. The current market for OCC in California is very strong; more than one half of the collected OCC in California is used by mills within the state.

Aluminum cans. Approximately half of the aluminum disposed of in solid waste is in the form of cans. The waste recovery system for aluminum cans is highly successful. Compared to other recyclables, aluminum cans command the greatest price per pound.

Aluminum cans that have been separated can be used by the primary producers and are remelted and made directly into can stock. Aluminum scrap is used primarily by secondary aluminum producers. The addition to the AB 2020 redemption value raises the total market price. Markets for aluminum cans exist in the United States and abroad.

Steel food and beverage containers. Tin cans that are used as food containers are actually steel cans with a thin coating of tin. Even this small

amount of tin can cause contamination in steelmaking. For this reason, detinning is used to both reclaim valuable tin and improve the quality of the steel scrap, although sometimes the postconsumer steel cans and scrap are used directly as a raw material.³ Steel can recycling is expanding, due in part to increased participation by steel mills and detinning mills in collecting and purchasing used steel cans.⁴ This is despite aggressive efforts by the aluminum can industry to enter the steel-dominated food can market.⁵

The major detinning companies have opened new facilities around the United States to accommodate the influx of steel cans and the demand from the steel industry. This has helped decrease transportation distances for recyclers.⁶

Glass cullet. Waste glass usage in the United States is estimated at 25 to 30 percent of the glass produced. Cullet is primarily traded on the United States market, so its market price remains fairly constant. A primary concern for end-use markets is the quality of the material. In the glass plant, contaminants can cause damage to equipment or result in poor quality product. One of the problems with curbside collection of commingled glass is that it produces multicolored shards of glass. Markets for mixed-color cullet are not as stable or lucrative as that for color-sorted containers.

The two primary end uses for recovered waste glass are cullet for new glass and as a raw material for making secondary products, such as glassphalt highway paving material, foamed insulation, and construction material.

Two potential markets for recovered glass in Lodi are Owens-Brockway (a division of Owens-Illinois Corporation) in Tracy and Circo Recyclers in Newark. Neither charges a processing fee to take the materials. The glass market has become problematic for many recyclers recently due to the increased quality standards being imposed and the request for color-sorted materials. The addition to the AB 2020 redemption values raises the total market price.

³Watson, p. 18.

⁴"The Steel Can's Push for Recycling Respect," by Michael Misner, *WasteAge*, February 1991, p. 69.

⁵Misner, p. 70.

⁶"Recyclable Steel Cans: An Integral Part of Your Curbside Recycling Program: *Steel Can Recycling Institute*, Summer 1990, p. 14

Plastics. Markets for plastics are fairly new, but the U.S. Environmental Protection Agency predicts that as processing technologies are developed, plastics recycling will grow and new markets will develop.

Most soda containers are made out of PET, which is the most recycled of all plastics. Over 80,000 tons of PET bottles were recycled in the United States in 1988. Postconsumer PET is prohibited for use in new food containers because of Food and Drug Administration restrictions (although certain developments are underway that may lift this restriction). The primary end use for PET is fiberfill, which is used in pillows, sleeping bags, and ski jacket insulation, among other things. The most desirable market for recycled PET is compounded, extruded, and molded plastic makers.

HDPE is used in the manufacture of jugs (e.g., milk, cider, distilled water) and bottles (e.g., laundry and dish detergent, motor oil, antifreeze). Although the market for recycled HDPE is growing because of sanitary restrictions, these items are not recycled back into food packaging. Major potential markets for recycled HDPE are soft drink basecaps, plastics, lumber, containers, drums, pails, and various types of pipes. One major west coast processor of HDPE is Partek in Vancouver, Washington, which is adjacent to Portland, Oregon. Partek processes only HDPE grade 2, and uses it to manufacture new containers. HDPE grade 2 is used in its natural color for milk, water, and juice jugs, and is colored for use in laundry detergent containers, shampoo and conditioner bottles, antifreeze containers, etc.

Low-density polyethylene (LDPE). LDPE is used primarily in the manufacture of various types of film, such as food wrapping. Greater than 650,000 tons of it are made into trash bags. It is also used to make piping and to coat wires and cables.⁷ It is also used in the manufacture of rigid items, such as food storage containers and flexible lids.⁸ LDPE is used in plastic grocery bags, which is one of the fastest growing segments of recycling. Four manufacturers provide most of the grocery sacks in North America and are committed to separating plastic grocery sacks from the wastestream to make them into new products.⁹

⁷-Progress in Plastics Recycling.' by Jim Glenn. *BioCycle*, December 1990, p. 53.

⁸-All Plastics Are Not Created Equal.' by Jerry Powell. *Resource Recycling*, May 1990, p. 41.

⁹-Plastic Grocery Sack Recycling.' by Arthur Amidon. *Resource Recycling*, November 1990, p. 24.

Dow Chemical Company and Sealed Air Company have formed a joint venture to recycle LDPE; one of its local plants is in Hayward. At this time, the program is available to Dow and Sealed Air customers only, but expansion of the program is being considered.¹⁰

Polystyrene. There are various forms of polystyrene: the most familiar being the foamed or expanded polystyrene foam commonly referred to as Styrofoam. The uses for expanded polystyrene foam include fast-food single serve cups and trays and packing materials in both rigid, molded form, and in loose form or "peanuts," as it is sometimes called. Recovered polystyrene can be used in the manufacture of toys, office equipment, insulation, and cassette casings.

Telephone books. Louisiana Pacific Company in Oroville expects to use a steady supply of telephone books for its particle board manufacture once it has its equipment for that part of the operation in place. The company uses phone books to make up approximately 10 percent of the content of its particle board. The company is presently in the early stages of acquiring the additional equipment necessary to expand its capacity.

Inert solids. Asphalt and concrete from construction demolition gets land-filled in many areas, although it is often recyclable. Ramrock Environmental Recycling, Inc. and Granite Construction in Lathrop recycles inert solids for the Lodi area. Their markets vary locally and depend upon the amount of construction projects occurring which require asphalt or concrete products.

Overseas markets. Strong markets exist abroad (e.g., Mexico, Saudi Arabia, and Pacific Rim nations) for many materials, especially mixed wastepaper and newspaper. Numerous brokers on the west coast represent these markets and are listed in various references.

4.7 Program Implementation

Table 4-2 describes the tasks necessary to implement the Selected recycling programs, the government agency responsible for their implementation, and the implementation dates.

¹⁰Dow and Sealed Air Join to Recycle LDPE Scrap: by Susan Combs. *Recycling Times*, January 29, 1991, p. 9.

4.7.1 Short-term and **Medium-term** Planning Period Implementation Schedule

The short- and medium-term schedules are shown in Table 4-2.

4.7.2 Implementation Costs

Implementation costs are shown on Table 4-3 at the end of this section.

4.7.3 **Actions** Planned to Deter **Scavenging**

The **most** effective means for deterring unauthorized removal of recyclable materials is through an ordinance prohibiting this activity. Lodi will consider such an ordinance.

4.8 Program Monitoring and Evaluation

Lodi recognizes the need to monitor and evaluate recycling programs in order to ascertain whether **diversion** goals are being met. The following section includes the steps that will be taken to monitor and evaluate the selected **recycling** programs.

4.8.1 Methods to **Quantify** and Monitor Achievement **of Objectives**

The following tasks will be used to effectively monitor the **success** of the recycling programs. Solid waste diversion will be quantified by tons.

Recordkeeping. Accurate recordkeeping will be the key to determining whether recycling objectives are being met. The City will require CWRS to keep separate records for each collection program, in the event that this is not currently done. With the number of new programs proposed, and expansions of existing programs, it will be critical to keep records **on** each program's collections. This means separate tonnage numbers for the **curbside** recycling program, the **corrugated** cardboard program, and so on. The number of tons of collected **materials**, as **well** as the **type** of materials need to be tracked. The City will work with CWRS haulers to **track** this information on a semiannual basis, which will allow **the** City to regularly monitor the recycling programs and progress toward meeting diversion goals. If necessary, the City will request CWRS to provide this information as a condition of the franchise agreement.

Surveys. Mailed questionnaires or telephone **surveys** will be conducted **by** the City **yearly** with sample groups from both the residential and **com-**

mercial/industrial sectors to determine (a) the awareness level about recycling programs and (b) among those already participating, what the satisfaction level is. For instance, are recycling programs convenient? Are they being used to their capacity? Through the surveys, obstacles to recycling can be identified and participation increased.

4.8.2 Written Criteria for Evaluating the Programs' Effectiveness

The effectiveness of each recycling program will be evaluated using the following written criteria.

- Are the recycling objectives being achieved?
- Total solid waste collected and total waste diverted. Through the recordkeeping system and the waste generation study, a determination will be made by the City as to whether the program is successful in achieving the estimated reduction in solid waste volume and weight. Reviewing the pounds per household recycled and disposed will be a good measurement tool.
- Participation rate. Regular surveying of residents and businesses will give the City an idea about the numbers of residents and businesses participating in recycling programs over time. An increase in the number of households or businesses participating over time is one measure of the success of these programs.

4.8.3 Parties Responsible for Monitoring, Evaluating, and Reporting

According to AB 939, the City Manager's office is ultimately responsible for the plans and programs outlined in this SRRE and for complying with the state's mandated diversion targets. The City will oversee the monitoring and evaluating of recycling programs and will be ultimately responsible for their execution. In addition, the City will work with CWRS to obtain operational information for its programs. The City will consider contracting for services such as conducting surveys.

4.8.4 Monitoring and Evaluation Funding Requirements

Additional staffing may be needed to manage the recordkeeping system, and a more detailed database will need to be established by the City. This

may require the purchase of additional computer hardware and Software. In addition, a budget will need to be set aside for the follow-up waste generation study and for surveying costs (primarily staff time and printing/mailling costs for questionnaires). Revenues to fund this program as well as the other Lodi SRRE programs will come from a surcharge which will be added to the utility bill of City residents and businesses.

4.8.5 Measures to be Implemented if Monitoring Shows a Shortfall

If monitoring efforts indicate that diversion objectives are not being met, the following measures will be employed.

- Diversion goals will be reevaluated to determine their feasibility, given empirical data.
- Evaluate public education efforts to determine whether these need to be increased to broaden awareness of, and participation in, recycling programs.
- Evaluate alternative markets for recovered materials.
- Provide incentives provided to the commercial/industrial sector for recycling.
- Address issues resulting from surveys that could potentially be affecting diversion goals.
- Establish City ordinance either making recycling mandatory or banning certain materials. such as corrugated cardboard, from disposal.

Table 4-1
Alternatives Evaluation for
Recycling Programs

| Program Categories | Effectiveness | Hazard | Ability to Accommodate Change | Consequences on the Wastestream | Implementation Period | Facility Requirements |
|---|---------------|--------|-------------------------------|---------------------------------|-----------------------|-----------------------|
| RESIDENTIAL. | | | | | | |
| (1) Multifamily Dwelling Recycling Program | *** | ** | ** | *** | *** | ** |
| (2) Expand Curbside Recycling Program | *** | *** | ** | *** | *** | ** |
| (3) By-back Recycling Centers | * | *** | *** | *** | *** | ** |
| (4) Mobile Collection System | ★ | *** | *** | *** | *** | ** |
| (5) Drop-off Centers | ** | ** | ** | ** | *** | * |

Table 4-1
Alternatives Evaluation for
Recycling Programs
(continued)

| | Evaluation Criteria | | | | | |
|---|---------------------|--------|-------------------------------|---------------------------------|-----------------------|-----------------------|
| Program Categories | Effectiveness | Hazard | Ability to Accommodate Change | Consequences on the Wastestream | Implementation Period | Facility Requirements |
| NONRESIDENTIAL: | | | | | | |
| (1) Expand Office Paper Collection Program | *** | *** | ** | *** | *** | ** |
| (2) Create Local Markets for Recycled Materials | ** | *** | ** | ** | ** | *** |
| RESIDENTIAL AND NONRESIDENTIAL: | | | | | | |
| (1) Expand Material Recovery Facility | *** | ** | *** | *** | *** | ** |
| (2) Salvaging at Solid Waste Facility | ** | ** | ** | *** | *** | *** |
| (3) Develop Zoning and Code Amendments | ** | *** | ** | *** | ** | *** |

Table 4-1
Alternatives Evaluation for
Recycling Programs
(continued)

| Program Categories | Consistency with Local Plans and Policies | Institutional Barriers | Estimated costs |
|---|---|---------------------------|--------------------|
| RESIDENTIAL: | | | |
| (1) Multifamily Dwelling Recycling Program | ** | ** | ** |
| (2) Expand Curbside Recycling Program | *** | *** | * |
| (3) Buy-back Recycling Centers | *** | *** | *** |
| (4) Mobile Collection System | * | ** | ** |
| (5) Drop-off Centers | *** | ★ | ** |

Table 4-1

Program Categories

**Table 4-2
Calendar of Recycling Tasks**

| Program | Implementation Tasks | Date | Responsible Entity |
|---|---|------|--|
| <u>Short-term Planning Period</u> | | | |
| Expand the curbside collection program to all residents | <p>The City will need to establish rates for expanded commingled system. Establish material to be collected and approximate start date for new service</p> <p>Purchase collection vehicles and containers and distribute</p> <p>Publicize the curbside program as a kickoff to the citywide mandatory curbside collection.</p> <p>Setup uniform minimum standards.</p> | 1994 | CWRS and the City of Lodi City Manager's office |
| Establish a recycling program for multifamily dwellings | <p>Work with franchise hauler to identify first phase of multifamily dwellings to be contacted for participation as well as waste types to be targeted and Collection days.</p> <p>Develop a mailing list and mail information material to the manager or homeowner's association of each complex to be included.</p> <p>Follow up the mailing with a telephone call or visit to encourage participation. Resolve any issues with each complex with regard to location of the collection Containers and schedule.</p> <p>Once the manager/homeowner's association agrees to participate, begin public education and information efforts aimed at residents.</p> | 1993 | CWRS/City of Lodi City Managets office |

Table 4-2
Calendar of Recycling Tasks
 (Continued)

| Program | Implementation Tasks | Date | Responsible Entity |
|---|---|--------------|---|
| Expand the office paper collection program | Decide on collection methods, order new containers if needed, order new collection vehicles if needed. | 1993 | CWRS/City of Lodi City Manager's office |
| Develop zoning and code amendments | Make purchasing and logistical arrangements with broker or processor. | | |
| | Identify appropriate ordinances/codes needing to be amended to help recycling efforts. Develop new regulations, especially to encourage recycling in new developments. Obtain approval of these changes from appropriate government entities. | 1994 | City of Lodi City Manager's office |
| Create local markets for recycled materials | Coordinate efforts with City programs to make sure recyclable materials are used. Develop recycling procurement policies aimed at using recycled products | 1993 | City of Lodi City Manager's office |
| Medium-term Planning Period | | | |
| Expand material recovery operation | Purchase upgraded equipment and materials. Complete site design, permitting, and environmental review. Build facility expansion. | 1995 to 1996 | CWRS |

Table 4-3

Implementation Costs and Revenue Source

| Program Alternative | Capital costs | Operating costs | Revenue Source |
|--|------------------------------------|-------------------------|----------------|
| Multifamily Dwelling Recycling Program | Not presently available | | Private |
| Expand CWRs' Curbside Recycling Program | \$3.4 million | Not presently available | Private |
| Expand Office Paper Collection Program | N/A | \$6,000 to \$24,000 | Private |
| Create Local Markets for Recycled Products via Procurement Policies | \$7,000 ¹ to 510,000 | N/A | Public |
| Expand CWRs' Material Recovery Operation | \$9.2 million | Not presently available | Private |
| Develop Zoning and Code Ordinance Amendments | \$7,000 to 510,000 | N/A | Public |
| ¹ Costs for developing source reduction procurement guidelines are included in these cost estimates | | | |



COMPOSTING

5 COMPOSTING COMPONENT

5.1 Introduction

Composting is the controlled biological decomposition of solid organic materials. Such materials include leaves, grass clippings, food waste, and other organic materials commonly found in the municipal wastestream. The end product of composting is a stable humus or soil-like material that can be used as soil conditioner, mulch, or fertilizer, depending on its physical properties. The benefits of applying compost to the soil include improved soil fertility, water-holding capacity, and erosion control. Although biological decomposition occurs naturally, several physical and chemical parameters must be controlled to maximize the rate of microbial activity and to minimize environmental impacts. These factors include temperature, oxygen, nutrient availability, moisture, and pH. With proper controls, composting can occur rapidly, yield a marketable product, and reduce the original volume of the organic material by 50 percent or greater.

Composting can play a key role in an integrated waste management program. Composting such waste can significantly reduce the amount of waste that goes to landfills or other disposal facilities. It also allows for more efficient waste collection and reduces gas and leachate problems associated with the landfilling of organic wastes. Composting activities can take place at the site of generation, i.e., backyard composting, or at a centralized facility. Backyard composting is considered a source reduction activity according to the *Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans* and is not addressed in this component.

Compostable waste is comprised of yard waste (leaves, branches, brush, grass clippings, and yard trimmings), agricultural waste (from crop production), and industrial food waste (from food processing). Currently, all of

these compostable materials are being processed within the City of Lodi by CWRS.

Yard wastes (grass, leaves, and brush) and food wastes (agricultural food processing wastes including peach culls and tomato pumice) have been found to make up the largest percentages of the City's compostable wastestream. comprising approximately 28 percent by weight (as a percentage of landfilled wastes).¹¹ or almost 13 percent of the total waste generated. These compostable wastes are the priority waste types for diversion. This has made composting an obvious choice as a focus for meeting AB 939 diversion goals.

This component presents composting objectives for the City of Lodi and identifies existing and proposed activities for achieving these objectives.

52 Goals and Objectives

The City developed the following specific goals for composting:

1. compost as much as possible the yard wastes generated in the City of Lodi
2. promote a community-based yard waste collection and processing program
3. promote centralized local composting of yard wastes generated in Lodi

The City's composting objectives for the short-term and medium-term planning periods are as follows:

Short-term Objectives

1. Continue and expand CWRS' existing windrow composting program to 50,000 tons per year capacity.
2. By 1992, the City will, in conjunction with CWRS, develop a long-term compost marketing strategy and compost product specifications.
3. By late 1992, require all new developments to incorporate a minimum quantity of compost produced within the City, based on the area of the development.

¹¹ City of Lodi Waste Characterization Study. San Joaquin County Department of Public Works. January 1990

4. By 1992, evaluate the feasibility of having CWRs' current windrow composting program serve as a regional composting program for northern San Joaquin County. The City will coordinate its evaluation with San Joaquin County.
5. By 1993, the City will require CWRs to secure preliminary contracts for compost materials from primary markets or private distributors and determine compost product needs and concerns of alternate markets.
6. Establish a City policy which requires locally composted materials be used for grounds maintenance at all local government and school facilities, including City parks and street maintenance programs by 1994.

Medium-term Objectives

1. The City will work with CWRs to expand composting programs as needed to capture as much of the compostable wastestream as possible (75 to 80 percent).
2. Use marketing strategy to encourage CWRs to continue/increase composting product sales. Revise compost product specifications as needed.
3. Finalize contracts and begin new contracts for compost materials. Match consumer needs with product grades available.
4. Encourage continued use of compost at all City facilities.
5. Use available data regarding success of compost use on City property to encourage private use.

5.3 Existing Conditions Description

According to the County's waste composition study, yard wastes comprise over 17 percent of Lodi's landfilled wastestream. In 1990, approximately 11,690 tons of yard wastes were disposed of by Lodi residents.

Lodi sponsors a Citywide residential leaf collection program which recovered approximately 814 tons in 1990 (Source: CWRs). Residents are asked to rake their leaves into the curb where the street sweeping crew will collect them. Three trucks supporting a five-person crew are used for this purpose. Leaf collection is scheduled during seasonal periods of high

leaf fall, ranging from November to January. No lawn clippings or brush are collected through the City's program. The leaves are transported to CWRS for composting. If City residents put their leaves in plastic bags the compost requires additional screening to remove the pieces of plastic from the finished compost and as such, impacts product quality. The City Solid Waste Management Task Force indicates that City residents generally **do** not place their leaves in plastic bags.

In an accounting system developed by San Joaquin County Public Works Department, Solid Waste Division, 30 percent of all diversion quantities reported by CWRS for the transfer station, self-hauled materials, or buy-back facilities must be credited to the unincorporated County.¹² Therefore, only 570 tons of garden trimmings can be credited as coming from Lodi residents into the Lodi Transfer Station for diversion. CWRS also collected 10,917 tons of industrial food wastes from within the City of Lodi.

These materials were composted by CWRS at the Lodi Transfer Station to produce approximately 2,950 tons of compost. CWRS present composting operation uses yard wastes, peach culls (agricultural waste), tomato pumice, and industrial food canning and processing wastes from City food processing industries. The remaining food waste is used to produce cattle feed supplements. This component will focus primarily on expanding CWRS' current windrow composting program for yard wastes and industrial food wastes.

5.3.1 Market Development, Economic Development, and Consumer Incentives

CWRS sells its compost in bulk to local landscapers and farmers. Thus, there is an existing market for the compost currently generated within Lodi. CWRS also sells its product, at the Lodi Transfer Station, by the cubic yard to members of the public. Composting objectives two through six are all designed to encourage existing markets and develop new ones.

Some incentives already exist for consumers to provide yard waste. These include the City's municipal leaf program and fall and spring clean-up days.

¹²Lil Price, San Joaquin County Public Works Department, Personal Communication. June 6, 1991

Economic development activities to encourage composting or the use of compost have not yet formalized. The City does not have a procurement policy for compost. However, the composting objectives do address the need for a City procurement policy and other measures to encourage the use of CWRS' locally produced compost. Once CWRS' composting facility expansion is complete, CWRS will work with the City to develop new markets for the added supply.

CWRS' existing windrow composting program will not be decreased in scope or phased out during either the short- or the medium-term planning periods.

5.4 Evaluation of Program Alternatives

This section presents an evaluation of alternative composting programs that can be used by the City to meet the composting objectives. The following alternatives were evaluated based on the evaluation approach described in Appendix B. As presented in Section 18733.3 of Article 6.2 of Title 14, the evaluation criteria are as follows:

- effectiveness
- hazard
- ability to accommodate change
- consequences on the wastestream
- implementation period
- facility requirements
- consistency with local plans and conditions
- institutional barriers
- estimated cost
- end uses

For each evaluation criterion, a rating of ★★★, **, or ★ is assigned, and a discussion of potential issues is given. The rating results of the evaluation are summarized in Table 5-1.

As structured by the regulations governing AB 939, some of the criteria by which the alternatives are required to be evaluated are positive in tone (e.g., effectiveness) while others are inherently negative (e.g., hazard). A ★★★ rating for a positive criterion implies a positive rating; and consequently a ★★★ rating for a negative criterion corresponds to few or no impacts associated with this potential problem.

Many of these activities are complementary to each other and depend significantly on the implementation of other alternatives or programs. The alternatives are evaluated in terms of their effectiveness and impact on the entire waste management system, including public education, source reduction, recycling, and disposal, and not as alternatives independent of one another.

Every composting program consists of three parts: collecting the organic materials, processing these materials, and marketing the finished compost product. In some instances, each of these parts may be selected for implementation independently and without consideration of the others. However, the choice of other alternatives may depend on the options previously selected. In order to provide a logical and consistent evaluation of each of the various combinations of options, collection alternatives will be presented and evaluated separately before evaluating processing alternatives. A complete program, which consists of both a collection and processing option, will be selected in Section 5.5, Selection of Program. This effectively avoids the dilemma of evaluating collection and processing systems against one another, when in fact they must be combined in order to establish a successful composting program. The markets or end uses are discussed in Section 5.4.3.

The City evaluated the following alternatives and related options to effectively divert its compostable material from landfill disposal or transformation.

- ALTERNATIVE 1. Implement Collection Alternatives

- Option 1. Adopt CWRS' proposed expansion of the residential yard waste collection program
- Option 2. Utilize alternate collection methods for residential yard waste

Option 3. Expand CWRs' current industrial program for compostables

Option 4. Collect alternative feedstocks

• ALTERNATIVE 2. Implement Processing Alternatives

Option 1. Expand the existing CWRs windrow composting system

Option 2. Develop an in-vessel composting system

An evaluation of alternatives is presented in the following sections. A summary of evaluation results is given in Table 5-1.

5.4.1 Alternative 1. Implement Collection Alternatives

The collection alternatives are presented below. A number of options have been evaluated, including the separate collection of compostables from the sources of generation (e.g., residential, commercial, industrial, or self-haul sources) and the collection of various compost feedstock materials. Each of the options also requires a processing alternative for implementation. See Alternative 2 for a discussion of the processing alternatives.

Option 1. Adopt CWRs' proposed expansion of the residential yard waste collection program. This option addresses the adoption of CWRs' proposed expansion of the existing residential leaf collection program to include all types of yard waste generated within the City of Lodi. In 1990, 59 percent of the yard waste disposed of within the City was from the residential wastestream according to the County's 1990 waste composition survey. In 1990, almost 12,000 tons of yard wastes from Lodi were disposed of at the County's landfill.

important considerations in evaluating expanding and altering the residential collection program include the method of set-out for yard wastes, the type of collection vehicles used, and the frequency of collection. While the utilization of one yard waste collection practice over another is not anticipated to have a measurable impact on the quantities collected, differing advantages, such as costs, labor, or flexibility, may be gained.

CWRs plans to establish a yard waste collection program which uses a large waste cart for yard and garden waste by January 1992. These carts are designed to fit semiautomated/automated tippers and are equipped with wheels for easy maneuvering. They require semiautoma-

ted/automated collection vehicles with dumping mechanisms. The operator positions the cart for mechanical lifting and returns it to its original position. As part of a total collection program, CWRS plans to

- Improve the current waste collection system by first implementing a two-waste cart system: one waste cart for refuse and the second waste cart for yard and garden waste only, by January 1992.
- Implement a third waste cart for commingled recyclable materials by January 1994.
- Purchase 13 semiautomated/automated collection vehicles by January 1992 to accommodate the expanded waste cart collection program.
- Expand the MRF at the Lodi Transfer Station into a state-of-the-art MRF, transfer station, recycling center, and composting facility by the medium-term time frame. This will include increasing the site's composting capacity either at the transfer station or an off-site location yet to be determined. Although CWRS estimates that the new composting facility could be implemented by 1992, given normal environmental review and permit processing time lines, a more conservative estimate would be to assume the facility would become operational by the medium-term time frame.

As described in the recycling component, the new waste cart system proposed by CWRS assumes universal distribution of waste carts to City residents, and an inclining rate structure where the cost of an additional container is substantially more expensive than the cost of the first container. This option helps meet the component goal to compost all yard wastes generated within the City of Lodi and the objective to expand CWRS' existing composting program. At this time it is not clear if this alternative eliminates the need for the City's leaf collection program. For purposes of this component, it is assumed the City's leaf collection program will continue as before.

Effectiveness. ★★★¹³ Residential yard waste makes up approximately 37 percent of the residential landfilled wastestream. If it is assumed that the existing windrow composting system has sufficient excess capacity to accommodate all the residential yard wastes, then for the short-term planning period this program could divert approximately 6,000 tons per year. In the medium-term time frame, this program could divert approximately 10,400 tons per year.

Hazard. ★★★¹⁴ Potential hazards associated with this option are minimal. Crew-member injuries which could result from maneuvering heavy waste containers are minimized with an automated collection system. Senior citizens and handicapped individuals may experience difficulties with placing grass clippings and bulky branches into a container.

Ability to accommodate change. ★★★ Public acceptance for this option is anticipated to be high because of the convenience factor. However, elderly and disabled residents may have trouble fitting brush and branches into the container. Changing technologies are unlikely to affect the feasibility of this option. However, seasonal variations probably have a larger effect than variations in economic, technical, and/or social conditions.

Consequences on the wastestream. ★★★¹⁵ This option does not significantly shift solid waste generation from one type of solid waste production to another. Carts would be reused.

Implementation period. ★★★ This option will be implemented in the short-term planning period.

Facility requirements. ★★★ None. This alternative assumes there is sufficient capacity in the current windrow composting facility.

Consistency with local plans and policies. ★★★ This option is consistent with local policies and existing plans. This option is consistent with CWRs' plans to expand its collection program and services offered to Lodi residents.

¹³Refers to relative rating of the alternative with respect to this criterion.

¹⁴Note that several of the criteria—hazard, institutional barriers, and consequences on the wastestream—are inherently negative. A rating of ★★★ for these criteria corresponds to few or no impacts associated with these potential problems.

¹⁵See footnote 14.

Institutional **barriers**. ★★★¹⁶ There are no institutional barriers. although the City's current contracts and agreements will have to be considered in implementing this option.

Estimated cost. ★ CWRS plans to update its composting program to include yard waste carts by 1992. According to CWRS' report entitled ***Integrated Waste Reduction and Recycling Plan for the City of Lodi***, the cost of waste carts ranges from \$52 to \$63 each. The cost of supplying **carts** to City residents in the first year (15,300 carts) is approximately \$795,600 to \$963,900. Additional costs include the purchase of semiautomatic **side-load** vehicles and hiring of staff. These costs, however, must be attributed to the refuse and recycling collection as well as to the yard waste collection program. Costs for the collection vehicles are accounted for in the recycling component. Up to 33 percent of these costs could be attributed to the yard waste program.

End uses. Not applicable. End uses are discussed in Section 5.4.3.

Option 2 Utilize alternate collection methods for residential yard waste. This option proposes that the residential leaf collection program be expanded to include all types of yard waste generated within the City of Lodi, utilizing an alternative collection method. Currently, residents are asked to rake their leaves into the curb where the street-sweeping crew collects them.

Important considerations in evaluating expanding and altering the residential collection program include the method of set-out for yard wastes, the type of collection vehicles used, and the frequency of collection. While the utilization of one yard waste collection practice over another is not anticipated to have a measurable impact on the quantities collected, differing advantages, such as costs, labor, or flexibility, may be gained. Collection practices could include loose collection, bag collection, or a containerized collection system. The latter is described in Option 1, above. A brief description of the loose collection and bag collection methods follows.

A loose yard waste collection system, utilizing a packer truck and a 'claw,' could be implemented in the City. The claw, referring to a mechanical claw attached to a wheel loader, gathers up loose yard waste placed next to the curb and deposits it into the packer truck. A minimum two-person crew is required for this operation. This option is usually conducted in conjunction

¹⁶See footnote 14.

with a street-sweeping Service to dispose of remaining debris. The claw may drop or be unable to grab up to 10 percent of the leaves and grass set out. The advantages of this system include the easy visibility of contaminants in the yard waste, mechanized lifting to avoid strain on the collection crew, convenience for residents in not being required to containerize their yard waste, and no debagging required during processing. This system has been successfully implemented in Sacramento, Davis, and San Jose.

The bag collection system uses plastic or heavyduty compostable paper bags. The paper bags are weather resistant and made of two plies of 50-pound kraft paper coated with a waterproof, nontoxic adhesive. For both types of bags, a 30-gallon capacity bag should be used. The use of paper bags may be more convenient because they don't split open like plastic bags sometimes do. In addition, plastic bags must be removed during yard waste processing. Shredding the paper bags during processing is not a problem. Paper bags are then simply coinposted along with the yard waste. The advantages of a bag collection system include little behavioral change required from the residents and compatibility with existing leaf collection program practices.

Effectiveness. ★★★¹⁷ It is anticipated that approximately 5,411 tons per year of yard wastes might be diverted by this option. During the medium term, approximately 9,759 tons per year of yard wastes might be diverted by this option.

Hazard. ★★★¹⁸ Potential hazards associated with this option are minimal. Normally, fire hazard is low; however, some risk may be associated in the loose collection practice with automobile catalytic converters starting yard debris on fire. The current similar practice of collecting leaves from the curb has created no such difficulty. Crew-member injuries **could** result from lifting heavy bags if bags are used.

Ability to accommodate change. ★★ Public acceptance for this option is anticipated to be moderate. Blowing yard debris or parking problems associated with yard waste piles located at the curb may be anticipated in the collection of loose yard waste. Changing technologies are unlikely to affect

¹⁷Refers to relative rating of the alternative with respect to this criterion.

¹⁸Note that several of the criteria--hazard, institutional barriers, and consequences on the wastestream--are inherently negative. A rating of ★★★ for these Criteria corresponds to few or no impacts associated with these potential problems.

the feasibility of this option. However, seasonal variations probably have a larger effect than variations in economic, technical, and/or social conditions.

Consequences on the wastestream. ★★★¹⁹ This option does not significantly shift solid waste generation from one type of solid waste production to another. Paper bags would be composted along with the yard waste. While plastic bags would be discarded, this is not anticipated to contribute significant quantities to the wastestream.

Implementation period. ★★★ This option could be implemented in the short-term planning period.

Facility **requirements.** ★★★ See Alternative 2 for discussion of the proposed facility options.

Consistency with local plans and policies. ★★ This option is consistent with local policies and does not affect existing City plans or ordinances. CWRS plans to establish a semiautomated collection system for yard waste, refuse, and recyclables. A loose yard waste collection system is not consistent with CWRS' plans.

Institutional barriers. ★★²⁰ The City's current contracts and agreements with CWRS will have to be considered in implementing this option. If the City wishes to implement this alternative, it would need to modify its present contract with CWRS to either require CWRS to collect yard waste in the manner specified by the City or to delete that service from CWRS' contract.

Estimated cost. ★★ A packer truck and a wheel loader with claw attachment will be needed for the loose collection system, although conventional packer trucks from existing fleets could be utilized (CWRS estimated it would need seven packer trucks and six loaders to implement this alternative). The cost of a packer truck could range from \$63,000 to \$168,000, depending on the capacity required. The cost of a wheel loader could range from \$40,000 to \$168,000, with the mechanical claw attachment adding an additional \$7,000 to \$11,000. Operational and maintenance costs are anticipated to be moderate. The bag collection system will require few additional costs. For example, compostable paper bags, as described above, cost approximately \$0.29 each. Per ton collection costs

¹⁹See footnote 18.

²⁰See footnote 18.

are expected to be in the range of \$80 to \$110 per ton of collected yard waste. Since this alternative could also potentially cause additional wear and tear on City streets, there will be some additional costs associated with maintenance and, possibly repair of City streets. The exact cost impact is unknown.

End uses. Not applicable. End uses are discussed in Section 5.4.3.

Option 3. Expand CWRs industrial collection programs for compostables. Option 3 involves the expansion of CWRs' program for collection of compostable materials from industrial businesses. CWRs has stated it has plans to expand its industrial collection program for compostables. Food wastes disposed of from industrial sources total over 3,000 tons. In 1990, 10,917 tons of industrial food wastes were diverted from grocery stores and food processing and canning plants. Expressed as a percent of total waste generation, approximately 7 percent of Lodi's wastes were diverted through composting of industrial food wastes. Expressed as a percent of food wastes generated by industrial sources, approximately 83 percent is diverted presently. With CWRs' exclusive franchise in Lodi for industrial, commercial, and residential wastes, there is the potential to capture almost the entire compostable fraction of industrial wastes and divert those wastes into its composting program.

Currently, CWRs collects commingled and source-separated food wastes from industrial sources. While the source-separated loads can be easily composted, the commingled wastes may or may not be composted depending on the proportion of noncompostable wastes to food wastes. Only minimal picking is used in the commingled loads. To expand the program, CWRs proposes to increase the quantities of source-separated wastes from its current customers. This could be accomplished through working with these firms to become responsive to each firm's individual waste management and diversion needs. In addition to education, financial incentives also may be effective. In the future, additional compostable wastes such as unrecyclable paper could be incorporated into this program.

This option meets the composting objective of expanding CWRs' existing industrial composting program.

Effectiveness. ★★★ Assuming that CWRs' exclusive franchise arrangement with the City enables them to capture those compostables which are presently disposed by the industrial sector, over the short term this alter-

native could divert an additional 3,800 tons per year in the short term and 4,200 tons per year in the medium term.

Hazard. ★★★²¹ No potential hazards are associated with this option.

Ability to accommodate change. ★★★ Public acceptance for this option is anticipated to be high. Changing technologies are unlikely to affect the feasibility of this option. As a collection program, this option would have the flexibility to adjust to changing waste quantities.

Consequences on the wastesteam. ★★★²² This option does not shift solid waste generation from one type of solid waste to another.

Implementation period. ★★★ This option would be implemented in the short term and continued in the medium-term planning periods. Some difficulties in implementation could be encountered if there is lack of space for collection containers at some businesses.

Facility requirements. ★★★ This option requires no new facilities. However, in order to produce compost from increased feedstock quantities, this option depends on the development of a composting facility. See Alternative 2 for discussion of the proposed facility options.

Consistency with local plans and policies. ★★★ This option is consistent with local policies, plans, and ordinances.

Institutional barriers. ★★★²³ There are no existing institutional barriers to this alternative.

Estimated cost. ★★★ Few additional costs are anticipated, as businesses require refuse collection services regardless of this program.

End uses. Not applicable. A food-waste collection program provides the necessary feedstock to develop a high-grade, readily marketable compost. End uses are discussed in Section 5.4.3.

Option 4 Collect alternative feedstocks. This option involves the collection of alternative feedstocks, including such wastes as sewage sludge or manure. The City is aware that any materials co-composted with sewage sludge do not count towards diversion at this time. The decision on whether sewage sludge will count is scheduled to be determined by

²¹ See footnote 18.

²² See footnote 18.

²³ See footnote 18.

July 1, 1992. One or more of these waste types would then be transported to a processing facility to be coprocessed with yard wastes into a high-grade compost product. The advantage of a co-composting system is the potential of producing a higher grade compost than could be produced from yard waste alone. However, significant contamination problems, i.e., salts and trace metals, could result from the use of inadequate feedstocks or improper processing techniques.

Loads of sewage sludge and manure could also be diverted to the processing facility for composting. These wastes are currently generated separately from the municipal wastestream. Although manure is not generated within the City, manure generated in adjacent County areas could be sought as a feedstock for the co-composting process. Sewage sludge is produced at the wastewater treatment plant.

This option must be selected in conjunction with a yard waste collection program in order to provide the co-feedstock for the composting process. This option may be implemented by the City, a City contractor, or in cooperation with one or more nearby jurisdictions.

This option meets the component objective of expanding the City's existing programs and developing marketability of compost.

Effectiveness. ★ Manure is not generated within the City, thus it is not countable toward diversion goals for the jurisdiction. The diversion of sewage sludge does not currently count toward the City's 1995 or 2000 diversion goals according to the Planning Guidelines and Procedures for Preparing and Revising *Countywide Integrated* Waste Management Plans. Yard waste diversion quantities are countable and are described under the yard waste collection program selected in conjunction with this option.

Hazard. ★★ Assuming that the wastes would be properly and completely composted, there are no additional health hazards associated with this option. Composting such wastes in an open windrow system would increase potential vector problems and could cause significant odor problems.

However, it is important that the materials be completely and properly composted in order for the human pathogens that may be present in the sewage sludge and manure to be destroyed. For most composting processes, complete pathogen destruction cannot be guaranteed. In addition, trace metals or chemicals and salts in manure or sludge may result in

undesirable compost characteristics. As a result, end uses for the compost product could be limited to land reclamation, horticultural uses, or certain types of plant and crop propagation, for use in orchards for example. This factor could significantly reduce the marketability of the compost product. Testing of manure or sludge for undesirable metals and chemicals **would** reveal potential market limiting problems. For further discussion on this issue, see consistency with local plans and policies.

Ability to accommodate change. ★★ Public acceptance for this option is uncertain, but unlikely without extensive testing and marketing. Changing technologies are unlikely to **affect** the feasibility of this option. A sewage sludge or manure collection program provides the necessary feedstock to develop a high-grade **compost**, though perhaps with limited marketability.

Consequences on the wastestream. ★★★ This option does not **shift** solid waste generation from one type of solid waste to another.

Implementation **period**. ★★ This option would be implemented in the medium-term planning period.

Facility requirements. ★★ This option is dependent on the development of a yard waste collection program and a **composting** processing facility, preferably utilizing an in-vessel system.

Consistency with local plans and **policies**. ★★★ This option is consistent with **local** policies, plans, and ordinances.

Institutional barriers. ★★ Currently, AB 939 does not allow the utilization of sewage sludge as a diversion measure. Therefore, **AB 939** impacts the decision whether to utilize sewage sludge as a **compost** feedstock.

Estimated cost. ★★★ to ★★ Additional transportation costs may **be** required for the **delivery** of manure and sewage sludge.

Costs **for** the yard waste collection program and the processing system are described with their respective evaluations.

End uses. Not applicable. This option provides the necessary feedstock to produce a high-grade **compost** product. End uses are discussed in Section 5.4.3.

5.4.2 Alternative 2. Implement **Processing** Alternatives

Processing alternatives are presented below. Two options have been developed and evaluated, representing low and high technology approaches to composting. These options also require the selection of collection alternatives for implementation. See Alternative 1 for a discussion of the collection options.

Option 1. Expand the CWRs existing windrow composting system. This option proposes to expand and improve CWRs turned windrow system incorporating pre- and post-processing operations designed to produce a marketable compost. The primary advantage of a windrow composting system is low to moderate capital and operating costs. Disadvantages of windrow composting are requirements for more land than that needed for in-vessel systems and the possible production of objectionable odors. The expanded facility would process and compost waste materials originating from the City, and could also handle compost materials from unincorporated areas in northern San Joaquin County. CWRs has plans to expand the capacity of the current composting operation to 49,000 tons per year. In 1990, the compostable portion of Lodi's wastestream (disposed and diverted) was approximately 31,000 tons. By the end of the short-term planning period, compostables could be almost 34,000 tons per year.

In order to speed the composting process, a pre-processing operation is typically performed before composting actually takes place. Pre-processing usually involves shredding or screening, or both, of the materials received.

Windrow composting systems involve stacking the pre-processed compostable materials in piles with a triangular or trapezoidal cross section. The turned windrow is the method most commonly used for yard waste composting and is currently used by CWRs. "Turning" describes the method of aeration, basically referring to tearing down the pile and reconstructing it so as to re-expose the pile interstices to air. During the active compost stage, materials will be turned four to eight times monthly to increase aeration, utilizing either a wheel loader, an excavator with a special attachment, or a compost turner made especially for this purpose. If plastic bags are used in collecting the yard waste, turning equipment that has demonstrated effectiveness in removing bags would be desirable. An irrigation system will be used to maintain proper moisture levels. Following

a curing period when the compost is sufficiently stabilized, the compost will be subjected to an additional stage of processing (referred to as post-processing) in which the material will be screened or shredded, or both, in preparation for producing products to market specification? The fine material passing a screen with approximately 1/4-inch openings will be transferred to a finished compost stockpile, and oversize material will be either returned to the active compost windrows, shredded, or segregated and marketed as additional products, such as mulch or wood chips.

If alternative feedstocks, such as sludge or manure are to be added to shredded yard waste in the composting process, additional processing is required. For example, after shredding the yard waste, sludge or manure would be integrated into the compost feedstock through the use of mixing equipment. These materials would then be co-composted. Additional windrow turning would also be required. A portion of the composting process may involve a variation of the windrow method, referred to as aerated static pile. In this method, air is supplied via positive or negative pressure through a network of pipes or a channel in a floor. Alternatively, an in-vessel system may be used for a portion of the composting process (see Option 2).

This option meets the component objective of expanding CWRs existing composting program.

Effectiveness. Not applicable. This criterion is not applicable to the processing alternatives (see Section 5.4.1, Alternative 1. Implement Collection Alternatives).

Hazard. ★★★²⁴ Potential hazards associated with this option are minimal. Normally, fire hazard is low, due to the interior moisture content of the composting material. Thus, if the surface materials were ignited, a major fire would be unlikely. Fire safety is improved through the ready availability of water through the irrigation system and the provision of open aisles between windrows.

Ability to accommodate change. ★★★ Public acceptance for this option is anticipated to be high, since CWRs already has a facility which is effective and is ready to be expanded. Changing technologies are unlikely to

²⁴Note that several of the criteria--hazard, institutional barriers, and consequences on the wastestream--are inherently negative. A rating of ★★★ for these criteria corresponds to few or no impacts associated with these potential problems.

affect the feasibility of the composting program. The process will be designed to produce a marketable product. In addition to creating a desirable consistency, the screening process also reduces visual contamination. Visual contaminants affect the appearance of the compost and include particles of waste, such as glass, plastics, or metals, which decrease the product's marketability.

Consequences on the wastestream. ★★★²⁵ Screening the compost will create a variety of end products, including mulch and wood chips. Whether the production and subsequent use of these materials counts toward AB 939 goals (i.e., as diversion) depends on their use. The use of wood chips as fuel, for example, is not allowable under AB 939 as a diversion measure. However, at this time the City's wood fiber is not being composted.

Implementation. ★★★ This option will be implemented in the short-term and medium-term planning periods.

Facility requirements. ★ This option requires expansion of a composting site, including the purchase of additional grading, turning, and screening equipment for implementation. Necessary equipment includes a compost turner, two loaders, a grinder, and construction of the expanded facility. Site preparation activities, such as grading for proper drainage, may also be required. Additional labor requirements will be determined. Regular laboratory analyses of the finished product will increase the products' marketability (see Section 5.4.3 for further discussion of this issue).

Consistency with local plans and policies. ★★★ This option is consistent with local policies, plans, and ordinances.

Institutional barriers. ★★★²⁶ AB 939 does not allow the use of transformation as a diversion measure for the 1995 goal. Therefore, AB 939 impacts the decision whether to utilize wood chips as fuel.

Estimated cost. ★ Capital costs are expected to be approximately \$1 million, exclusive of land, according to CWRIS report entitled *Integrated Waste Reduction and Recycling Plan for the City of Lodi*. Costs could be higher or lower depending on the specific types of equipment purchased and site preparation. Annual operating expenses, which may range from

²⁵See footnote 24

²⁶See footnote 24

\$10 to \$20 per ton. include labor. fuel, equipment maintenance (parts and labor), and laboratory analyses. This figure is exclusive of land costs.

End uses. ★★★ This option produces a variety of compost products and by-products, including composted fines, mulch. and wood chips. The option has the capability of producing a high-quality compost (see also Section 5.4.3.)

Option 2. Develop an In-vessel composting system. This option **pro-**poses the development of an in-vessel bin-type system for the processing of several potential feedstocks. An in-vessel system provides an enclosed or somienclosed environment for the composting process. This facility would be best suited to process and compost feedstocks that are highly putrescible. including food. sludge, or mixed municipal solid waste. The advantages of an in-vessel composting system over a windrow system include lesser space requirements, greater process and materials handling control. reduced labor requirements, shorter composting period. better environmental control, and greater system throughput. The disadvantage is relatively high capital cost.

This facility would process and compost waste materials originating from the City. However, the City may choose to cooperate with one or more jurisdictions in developing a regional processing facility.

The bin system consists of one or more rectangular troughs into which feedstock is fed by way of conveyor belts. Air may be forced into the composting material through perforations in the floor of the bin. A tiller-like device, in conjunction with a traveling belt, may also be used to mix the material periodically and to discharge the material from the bins. If plastic bags are used in collecting the yard waste, equipment that has demonstrated effectiveness in removing bags would be desirable. After an initial in-vessel composting period, all in-vessel systems require some 'curing' or "maturation" time in order for the compost to stabilize.

The retention time of materials in the active composting stage is generally 3 or 4 weeks. At that time, materials would be substantially stabilized. Then they will be moved to the curing stage where they will be further stabilized for another 4 to 8 weeks.

An in-vessel system would involve similar pre- and post-processing operations as were described in processing Option 1, above.

Because of the high level of mechanization included in an in-vessel system and the proprietary nature of the commercially available systems, a pilot program will not be necessary to demonstrate the in-vessel technology. A brief start-up period will be required, however, in order to test equipment and procedures.

This option meets the component objectives of diverting yard waste from landfills by composting.

Effectiveness. Not applicable. This is not applicable to the processing alternatives (see Section 5.4.1, Alternative 1. Implement Collection Alternatives).

Hazard. ★★²⁷ The hazard of this system is entirely dependent on the feedstock used. There are no potential hazards associated with yard waste composting utilizing this option. Assuming that sewage sludge or other putrescible wastes would be properly and completely composted, there are no additional health hazards associated with composting them in an in-vessel system.

However, it is important that the materials be completely and properly composted in order for the human pathogens that may be present in the sewage sludge and manure to be destroyed. For most composting processes, complete pathogen destruction cannot be guaranteed. In addition, trace metals or chemicals and salts in manure or sludge may result in undesirable compost characteristics.

Ability to accommodate change. ★★ Public acceptance of this option is anticipated to be low, since CWRs already has a windrow facility in place. However, in-vessel composting has several technological advantages, including excellent capabilities to control the physical parameters of composting (e.g., oxygen content, moisture content, and temperature), high decomposition rates, reduced land requirements in comparison to windrow systems, and minimized environmental impacts. A variety of bin systems are operating successfully in the United States.

Changing technologies are unlikely to affect the feasibility of this option. Post-processing, or screening the compost, will enhance the marketability of the product. In addition to creating a more desirable consistency, post-

²⁷ Note that several of the criteria -hazard, institutional barriers, and consequences on the wastestream- are inherently negative. A rating of ★★★ for these criteria corresponds to few or no impacts associated with these potential problems.

processing also reduces visual contamination. Visual contaminants, which affect the appearance of the compost, include panicles of waste, such as glass, plastics, or metals; the presence of these contaminants decreases the product's marketability.

Consequences on the wastestream. ★★★²⁸ Screening the compost during post-processing will create a variety of end products, including mulch and wood chips (see Option 1. Develop a Regional Windrow Composting System above for further discussion of this issue). The use of these products will determine whether waste generation is being shifted from one waste type to another.

Implementation. ★★ This option will be implemented in the medium-term planning period.

Facility requirements. ★ In-vessel systems are more machine intensive, thus less labor is required in their operation. A bin-type composting facility must be sited and constructed prior to implementation. This option also requires the purchase of screening equipment for post-processing activities. Necessary equipment includes hoppers, conveyors, and a screen.

Consistency with local plans and policies. ★ This option is not consistent with local policies and plans, since CWRS already has a windrow system in place and is planning to expand its capacity.

Institutional barrier. ★★★²⁹ AB 939 does not allow the use of transformation as a diversion measure for the 1995 goal. Therefore, AB 939 impacts the decision whether to utilize wood chips as fuel.

Estimated cost. ★ The disadvantages of the in-vessel composting system are cost and equipment maintenance. The cost of an in-vessel system can be prohibitive for use in yard waste composting. In addition to significant capital costs, an in-vessel system can also incur large operating costs. Equipment maintenance may be time consuming and costly for an in-vessel system depending on the equipment and system design. Expressing capital and operating expenses on a cost-per-input ton of yard waste, an in-vessel bin system could range from \$60 to \$100 per ton.

End uses. ★★★ This option produces a variety of compost products and by-products including composted fines, mulch, and wood chips. The

²⁸ See footnote 27.

²⁹ See footnote 27

in-vessel system has the capability of producing a high-quality compost (see also Section 5.4.3.)

5.4.3 End Uses **for** Processing **Alternatives**³⁰

The availability of compost markets is a key requirement in the successful development of a composting program. The City **will** require the franchise haulier to implement a compost marketing strategy to accommodate **increased** quantities of compost. A marketing strategy could include the following steps to implement the program effectively.

1. Develop compost product specifications to identify **primary** and alternative markets for compost materials.
2. Secure **preliminary** contracts for **compost** products. Use the information derived from the compost market analysis to match the product to needs and concerns of **buyers**.
3. Provide for City participation. Continue the effective **pub-
lic/private** relationship between the City and the franchise hauler.

Local markets should be identified whenever possible. Transportation costs are also an important **consideration**, because the greater the distance to market, the higher the price of the product. However, this also works in reducing outside competition when there is a local source available. The price of the product is critical **in** its marketability.

Potential markets include agriculture, soil brokers, garden supply stores, nurseries, landscape contractors, sod growers, tree farms, and golf courses. On-site direct marketing to residents has not been found to be a reliable end use. **Most** homeowners seek a high-quality product in small quantities, usually preferring a bagged product. Residents may lack appropriate **containers** or means of transport for bulk distribution of the product.

In urban areas, soil brokers are typically the largest buyers of organic materials on the wholesale market. This market is currently very promising and especially strong for locally produced organic materials. Many of these organic materials currently purchased by soil brokers are transported, sometimes great distances, from lumber mills and other industrial processing facilities. For the **most** part, local soil brokers rely on imported

³⁰ This section presents a **discussion** of end uses for compost that **applies** to the **alternatives** discussed in Section 5.4.2

sawdust, wood chips, bark dust, and bark chips for organic materials. Local production of compost and other organic materials could substitute for the large quantities of imported organic materials.

Within San Joaquin County, agriculture presents a significant potential compost market. Some farmers supplement the use of commercial fertilizers with the use of soil amendments such as manures, compost, sawdust, and cover crops; however, most rely only on commercial fertilizers. Agricultural wastes, in particular manures, are currently being composted in the region, with little difficulty in finding adequate markets or uses, especially as these wastes tend to be high in nitrogen. The greater use of organic soil amendments in agriculture would be very beneficial for improving soil properties, so the potential exists for developing agriculture as a compost market. However, farmers may have concerns about purchasing compost, including the quality and consistency of the product (regular laboratory analyses are highly recommended); cost; quantities available; moisture content, affecting the weight and spreadability of the product; and nutrient value. Marketability of the product will significantly depend on these factors. In particular, farmers will be concerned about the chemical and trace metal or salt content of any soil amendment they apply to their fields. This is generally negligible in regard to yard waste composting, but may be significant in sewage sludge or manure composts. Farmers' tolerance for inert, but visible contaminants, such as fragments of plastic, glass, and metals, in soil amendments is unknown at this time. CWRs has already succeeded in selling compost to local farmers.

Soil amendment application rates vary from approximately 2 to 30 tons per acre. Most farmers incorporate organic matter into their soil only once per year at a given time in the growing cycle. Thus agricultural uses tend to be seasonal.

Public agency markets, although generally smaller than the private sector markets, are also worth considering. The City intends to implement procurement policies giving preference to the use of compost products in place of commercial fertilizers and soil amendments when these are purchased. Although City use of these products may be low, the value of such a decision may prove worthwhile, especially in encouraging landscapers and other businesses to use compost products. This measure would meet the component objective of establishing a City policy which requires composted materials be used for grounds maintenance at all local government and school facilities.

The aim of several pieces of legislation passed in California ~~last~~ year was to increase public sector demand for compost. Beginning in 1991, the state's highway landscape maintenance programs will use compost in place of, or in addition to, commercial fertilizers. Beginning in 1993, the state will initiate programs to restore public lands using composted materials. In addition to these measures, any procuring agency that requests a bid for commercial fertilizer or soil amendment must document the determination that the use of compost was not feasible. Future markets for compost may be identified by a state-funded study evaluating uses for compost. These efforts may further expand markets for the City's compost for use by the Department of Transportation, the Department of General Services, and other State and local public agencies. In addition, the City could evaluate the use of compost for land reclamation uses. These are generally one-time uses and should not be relied on in a long-term market strategy.

Flexibility in production is a key for reliable distribution of the compost product. There is currently demand for a number of different compost grades for a variety of uses. Production of varying particle sizes for the compost product using coarser to finer screens during post-processing, allows better pricing flexibility in meeting differing market needs.

There are at least four distinct products that could result from yard waste processing activities: composted fines, mulch, wood chips, and low-grade compost. The composted fines, a higher grade compost, could be defined as mature compost with virtually all of the particles passing through a 1/4-inch screen. Mulch consists of either mature composted or uncomposted materials, slightly larger than the fines, ranging from 1/2 to 2 inches in particle size. Wood chips are not composted and can range in size from 1 to 3 inches. Low-grade compost is a product in which there has been no screening to differentiate between the particle sizes described above or one that contains contaminants. The production of uncomposted mulch and wood chips does not involve controlled biological decomposition and therefore is not considered composting under AB 939. However, credit for the diversion of such materials may be given as a form of recycling.

The market for wood chips processed and sold as fuel is exceptional. Even though this method of diversion constitutes transformation and is therefore not countable toward AB 939 goals for 1995, it is a viable alternative to landfill disposal. It will also count 10 percent towards the year 2000 AB 939 goals. Avoided landfill disposal costs, as well as revenues

gained from the sale of wood chips, may make this an attractive option. These revenues then could be used to support other AB 939 diversion programs. Marketing wood chip; for mulch or other landscape dressing is not advisable unless the product is uniform in particle size and is aesthetically consistent in appearance. Bark chips are typically used by landscapers because of the consistency of these qualities. While chipped yard waste tends to appear mottled in color and inconsistent in size. Particle size characteristics depend primarily on the composition of feedstock and the method of shredding. These factors should be considered in the planned market for wood chips.

Levels of noncompostable contamination, stability, nutrient content, trace metal and chemical compound content, and physical appearance ^{3\50} affect the quality, and thus the marketability, of compost. Market studies have indicated that the quality of the product is a primary concern for commercial buyers. Conducting regular laboratory analyses, including a soil fertility and micronutrient analysis and an organic amendment analysis, is highly recommended. Laboratory results and testing parameters should be made available to potential buyers to assure them that the finished product maintains consistent levels of quality and content.

The market for compost produced from feedstocks other than yard debris (such as municipal solid waste and food-waste compost) may be limited in the City and the region. Although the appearance, consistency, and nutrient content demonstrated by food-waste compost may be preferred by many landscapers and nurseries, its marketability could be limited by health concerns including disease transmission, contamination, and an uncertainty as to its contents. The production of this material has the potential of improving the yield and quality of high-grade compost; however, processing complications perhaps combined with an uncertain reception from potential buyers, may result in a limited ability to distribute the product. Demonstration projects during pilot-scale production may be the best approach to overcoming buyer uncertainty.

There are some risks associated with identifying end uses for compost. The quantity of compost products on the market in California within the next few years is unknown, although it is expected to increase rapidly. Competition among composting programs in a number of localities could be significant. Although it is too early to project the saturation level of the compost market, flexibility in product specifications and pricing could be the key to a successful marketing strategy. The risks associated with mar-

keting low-grade compost may be somewhat higher than those associated with high-grade compost. Compost marketing is anticipated to be competitive if adjacent regions are also compost producers. If high-grade yard waste compost is readily available within a short transpon distance, this will out-compete a program that offers only a low-grade compost product.

5.5 Selection of Program

The selection of these programs was based on ~~the~~ data from the waste generation study, the application of evaluation criteria. and the ease of implementation in the City.

5.5.1 Alternatives Selected

The selected program to be implemented in the short-term planning period includes

- Adopting the proposed expansion of CWRS' residential yard waste collection program (Alternative 1, Option 1). This alternative was selected because CWRS is already planning to expand its program. so much of ~~the~~ preliminary ground work and plans are already in place. ~~As~~ a result, this alternative is feasible and practical to implement. This alternative will divert 5.41 1 tons per year in the short-term planning period and 9.759 tons per year in the medium term. This option must be implemented in conjunction with a processing alternative to obtain diversion of wastes.
- Expanding industrial collection programs ~~for compostables~~ (Alternative 1, Option 3). This alternative was selected for two reasons: (1) CWRS has a viable program which it already intends to expand and (2) this alternative will divert as much of the industrial compostable ~~wastestream~~ (excluding wood wastes) as practical. These would divert an additional 3.806 tons per year in the short term and 4,201 tons per year in the medium term.
- Expanding the windrow composting system (Alternative 2, Option 1). This alternative was selected because of its relative ease of implementation. CWRS already uses the

windrow method and is proceeding with plans to expand the facility. The expansion will include all yard waste from Lodi, as well as unincorporated areas of northern San Joaquin County. The expanded facility could thus be a regional northern San Joaquin County facility.

- Developing a compost marketing strategy. This alternative was selected because the quantity of yard waste generated within the City will significantly increase the amount of compost produced by CWRs. Thus, effective marketing will be essential for the program to succeed.

5.5.2 Estimated Diversion Quantities

Refer to the integration component (Section 10.2) for the percentages of diversion which will contribute towards diversion goals.

Increased diversion from proposed programs

Expand residential yard waste collection

| | |
|--------------|---------------------|
| Short term: | 5,411 tons per year |
| Medium term: | 9,759 tons per year |

Expand industrial collection for compostables

| | |
|--------------|---------------------|
| Short term: | 3,806 tons per year |
| Medium term: | 4,201 tons per year |

Total new diversion

| | |
|--------------|----------------------|
| Short term: | 9,217 tons per year |
| Medium term: | 13,960 tons per year |

Diversion from existing programs

City leaf collection program

| | |
|--------------|-------------------|
| Short term: | 617 tons per year |
| Medium term: | 681 tons per year |

Industrial collection of compostables

| | |
|--------------|----------------------|
| Short term: | 12,204 tons per year |
| Medium term: | 13,475 tons per year |

Total diversion from existing program..

| | |
|--------------|----------------------|
| Short term: | 12.821 tons per year |
| Medium term: | 14,156 tons per year |

Total diversion

| | |
|--------------|----------------------|
| Short term: | 22.038 tons per year |
| Medium term: | 28.116 tons per year |

5.5.3 End Markets and End Uses

Agriculture will be targeted as the primary market for compost and mulch products. Although this is anticipated to be a reliable market, secondary markets will also be identified. Secondary markets consist of additional potential large-scale users and buyers of organic material in the region, including soil brokers, garden supply stores, nurseries, landscape contractors, sod growers, tree farms, and golf courses.

The City will implement appropriate procurement measures for locally CWRs-composted materials. This "internal market" will be reliable and relatively stable during periods of fluctuation in other markets.

The strategy for marketing wood chips, resulting from the screening operations, will be dependent on the size and appearance of the product. If the wood chips are not marketable as a landscape dressing, they will be marketed as fuel. Although the diversion of wood chips for this purpose does not contribute to diversion credits under AB 939, and thus the diversion goals, revenue from the sale of wood chips will help to defray the costs of the processing program. In addition, up to 10 percent transformation (as incineration is defined by AB 939) is allowable diversion credit under extreme circumstances in meeting the 50 percent diversion goal by 2000. (For further discussion of end uses, see Section 5.4.3.)

5.5.4 Materials Handling and Disposal Needs

A residential curbside collection and industrial program will be utilized in conjunction with the expansion of CWRs' existing processing facility. The implementation of CWRs' residential semiautomated/automated collection system will allow for prescreening the material for contamination (CWRs, 1991). Disposal of additional contaminants from the screening process, including particles of glass, plastics, or metals, is anticipated to be mini-

mal, but will be disposed of in the landfill. Aside from the screened contaminants, no special materials handling or disposal needs are anticipated.

5.5.5 Facility Needs

The following describes the required facilities which CWRS anticipates are needed for the selected programs. This program requires expansion of a composting site, including the purchase of additional grinding, turning, and screening equipment for implementation. Necessary equipment includes a compost turner, two loaders, a grinder, and construction of the expanded facility. Site preparation activities, such as grading for proper drainage, may also be required. Additional labor requirements will be determined. Regular laboratory analyses of the finished product will increase the products' marketability (see Section 5.4.3 for further discussion of this issue).

5.5.6 Measures to be Taken if Diversion Rate Requirements Cannot be Met

The City or CWRS will have several options in the event that the participation is not significantly increased or the compost market is not viable for the diversion of organic materials. These alternatives include (1) increasing the frequency of garden clean-up events, (2) stockpiling compost until the emergence of more favorable market conditions, (3) evaluating the feasibility of enacting a City ordinance to ban disposal of yard waste, and (4) significantly increasing the quantities of compost utilized by the City to absorb compost stockpiles. While none of these options is currently recommended for implementation, they may be put into place as emergency measures to achieve the mandated diversion requirements.

5.6 Program Implementation

The following section describes the tasks necessary to implement the selected program.

5.6.1 Government Agencies Responsible for Implementation

The City Manager's office is currently responsible for managing the City's solid waste and has contracted for this service with CWRS. The City Manager's office will also be responsible for implementing or developing and managing contracts for implementing the selected program.

5.6.2 Tasks Necessary to implement Program

The steps required for implementation of the expanded residential and industrial programs in the short-term planning period include

- Obtaining funding (CWRS expects that the City will issue certificates of participation to purchase carts and collection vehicles which CWRS will then lease from the City. Certificates of participation are similar to revenue bonds. See page 9-3.)
- Purchasing additional 60-gallon waste carts for residences.
- Facilitating additional source separation of wastes at industrial sites.
- Modifying collection routes if needed.
- Purchasing collection vehicles and equipment.
- Beginning expanded collection program.

Several steps will be required for implementation of the processing program in the short-term planning period. The following are to be completed through an agreement of the participating jurisdictions and CWRS:

- develop compost product specifications
- develop expanded compost process and facility design
- perform site improvements
- purchase and install processing and screening equipment
- start up
- perform laboratory analyses

The steps required for implementing the marketing strategy in the short-term planning period include

- obtaining preliminary contracts for compost products
- testing market compost products
- developing a procurement policy for the City

In the medium term, implementation tasks involve continued efforts to achieve the diversion rate and program goals. Further expansion, equipment, and contracts will be developed as needed for all alternatives selected.

5.6.3 Short-term and Medium-term Planning Period Implementation Schedule

The schedule in Table 5-2 presents the schedule for implementation of the selected program.

5.6.4 Implementation Costs

Table 5-3 summarizes the implementation costs and revenue sources for the selected program.

5.7 Monitoring and Evaluation

5.7.1 Methods to Quantify and Monitor Achievement of Objectives

To effectively quantify and monitor the achievement of the program in meeting the objectives, the following tasks should be undertaken:

- Require CWRS to record incoming yard waste quantities and participation rates from CWRS' curbside collection program and to report that information semiannually to the City.
- Compare and analyze disposal records from before and after the implementation of the selected program.
- Monitor market demand and trends.
- If the above data are not conclusive, perform periodic updates to the waste generation study, as needed.

5.7.2 Written Criteria for Evaluating Program's Effectiveness

The City will evaluate the achievement of the selected composting program by the following criteria:

- Incoming yard waste will be monitored for increases in diversion quantities. If quantities remain the same or are reduced due to increased xeric landscaping (utilizing slow-growing, drought-tolerant plant species), this will count toward source reduction and can be monitored through local nurseries and landscapers.
- Marketing strategies will be evaluated for effectiveness in moving compost products and whether additional markets or specifications are needed. The City **will** assist the contractor in developing markets through procurement policies and in working with industries.

5.7.3 Agencies Responsible for Monitoring, Evaluating, and Reporting

The City will be responsible for the program's monitoring, evaluating, and reporting requirements.

5.7.4 Monitoring and Evaluating Funding Requirements, Revenues, and Revenue Sources

The City Manager's office will assess fees as necessary to fund the required programs which will be added to the user rates. The City will also use municipal financing mechanisms, such as private activity bonds or certificates of participation, as appropriate.

5.7.5 Measures to be Implemented if There Is a Shortfall in the Diversion Objectives

If the diversion objectives for composting are not met, or there is a shortfall in attaining the diversion mandate, the following measures may be implemented:

- see Section 5.5.6, Measures to be Taken if Requirement Cannot be Met, for alternatives in the event of a marketing shortfall
- increase the level of effort for public education
- modify the objectives or diversion alternatives

5.7.4 Monitoring and Evaluating Funding Requirements, Revenues, and Revenue Sources

The City Manager's office will assess fees as necessary to fund the required programs which will be added to the user rates. The City will also use municipal financing mechanisms, such as private activity bonds or certificates of participation, as appropriate.

5.7.5 Measures to be Implemented if There is a Shortfall In the Diversion Objectives

If the diversion objectives for composting are not met, or there is a shortfall in attaining the diversion mandate, the following measures may be implemented:

- see Section 5.5.6, Measures to be Taken if Requirement Cannot be Met, for alternatives in the event of a marketing shortfall
- increase the level of effort for public education
- modify the objectives or diversion alternatives

Table 5-1
Summary of Composting Alternatives Evaluation

| Alternatives | | Evaluation Criteria | | | | |
|--|---------------|---------------------|-------------------------------|---------------------------------|-----------------------|-----------------------|
| | | | Ability to Accommodate Change | Consequences on the Wastestream | Implementation Period | Facility Requirements |
| Alternative 1 | Effectiveness | Hazard | | | | |
| Expansion of Residential Collection | *** | *** | *** | *** | *** | *** |
| Alternate Residential Collection Methods | *** | *** | ** | *** | *** | *** |
| Expansion of Industrial Program | *** | *** | *** | *** | *** | *** |
| Alternative Feedstocks | * | ** | ** | *** | ** | ** |
| Alternative 2 | | | | | | |
| Expansion of Windrow Composting System | N/A | *** | *** | *** | *** | * |
| In-vessel Composting System | N/A | ** | ** | *** | ** | * |

| | Additional Considerations | | | |
|---|---|---------------------------|-------------------|-------------|
| Alternative 1 | Consistency with Local Plans and Policies | Institutional Barriers | Estimated Cost | End Uses |
| Expansion of Residential Collection | *** | *** | * | N/A |
| Alternate Residential Collection Methods | ** | ** | ** | N/A |
| Expansion of Industrial Program | *** | *** | *** | N/A |
| Alternative Feedstocks | *** | ** | *** to ** | N/A |
| Alternative 2 | | | | |
| Expansion of Windrow Composting System | *** | *** | * | *** |
| In-vessel Composting System | * | *** | * | *** |

Table 5-2
Calendar Of Composting Tasks

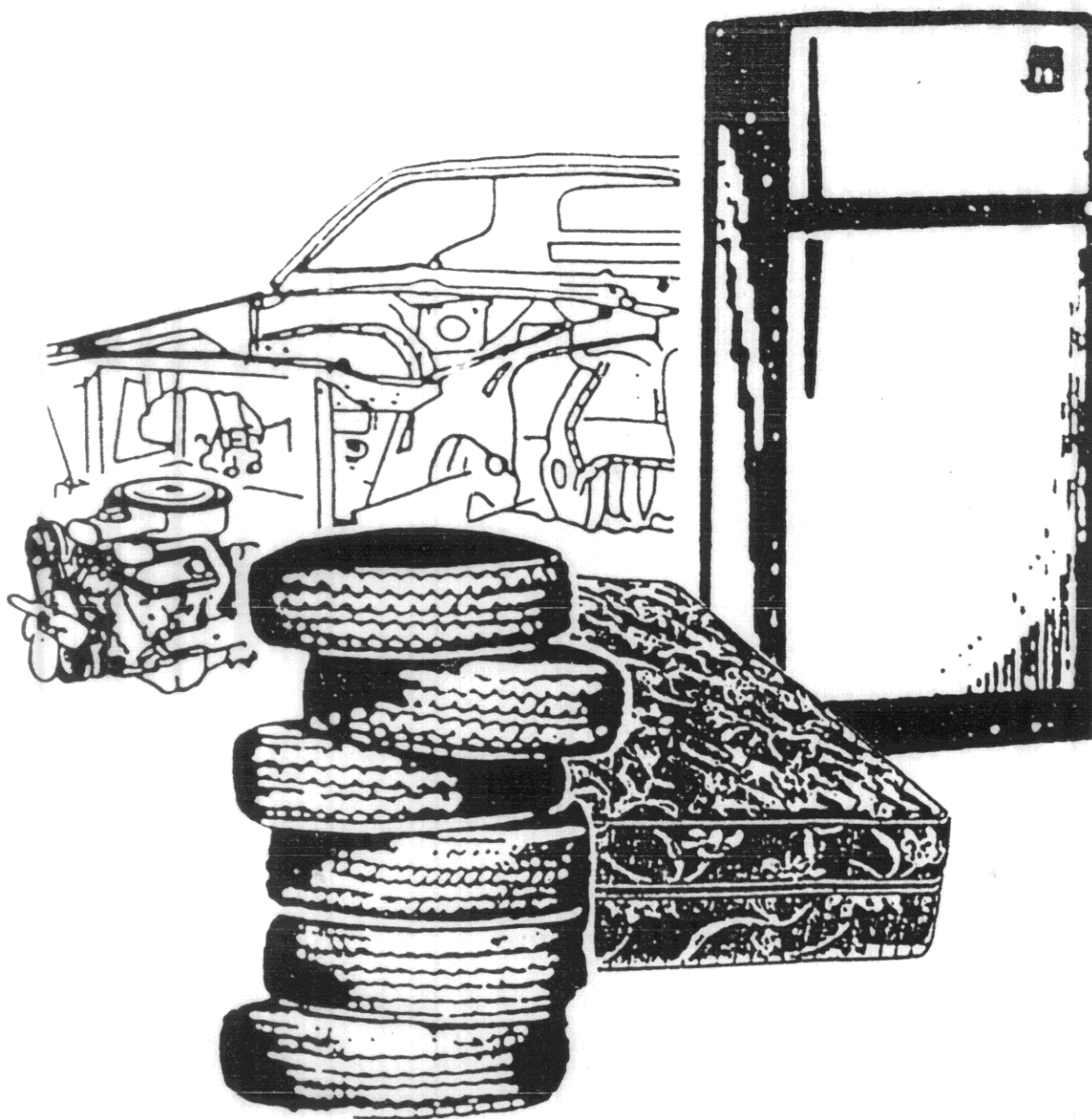
| Program | Implementation Tasks | Date | Responsible Entity |
|--|---|-------------|---------------------------|
| Adopt the proposed expansion of the residential yard waste collection and industrial program | Obtain funding | 1992 | City |
| | Purchase cars | 1992 | City |
| | Modify collection routes if needed | 1992 | Franchise Hauler |
| | Purchase collection vehicles and equipment | 1992 | City and Franchise Hauler |
| | Begin expanded collection program | 1992 | Franchise Hauler |
| Expand the existing CWRS windrow composting system | Develop compost product specifications | 1991 | City and Franchise Hauler |
| | Develop conceptual design sufficient for environmental review and permitting | 1991 - 1992 | Franchise Hauler |
| | Acquire state and local permits | 1992 | Franchise Hauler |
| | Perform site improvements and screening equipment | 1993 | Franchise Hauler |
| | Purchase/install processing equipment | 1993 | Franchise Hauler |
| | Start up | 1994 | Franchise Hauler |
| | Full scale operation | 1995 | Franchise Hauler |

(continued)

| Program | Implementation Tasks | Date | Responsible Entity |
|------------------------------|---|------|--------------------|
| Implement marketing strategy | Obtain preliminary contracts for compost products | 1993 | Franchise Hauler |
| | Test market compost products | | |
| | Develop procurement policy for the City | 1994 | City |

Table 5-3
Estimated Annual Costs for
Lodi Composting Program

| | Capital costs | Annual Operating Costs | Revenue Sources ¹ | |
|--|--------------------------------------|------------------------|------------------------------|---------|
| | | | Public | Private |
| Expand Residential Collection ² | | | | |
| (supply cans to 15,300 households) | \$795,600 to 963,900 | | ✓ | |
| (equipment) | Cost included in recycling component | | ✓ | |
| Expand Industrial Program | none | (not significant) | | ✓ |
| Expand Windrow Composting ³ | N/A | \$ 124,000 to 248,000 | | ✓ |
| ¹ Revenues will be obtained from user rates. ² Further estimates of capital operating costs are forthcoming from CWRS. ³ Exclusive of land costs. | | | | |



**SPECIAL
WASTE**

6 SPECIAL WASTE COMPONENT

6.1 Introduction

Special wastes are solid wastes that require unique handling and disposal methods because of their health hazard, environmental impact, or physical characteristics. Special wastes are defined in Section 18720, Article 3, Chapter 9, Title 14, California Code of Regulations.

The special waste components must describe those special wastes identified in the waste generation study for which there is no **permitted** handling or disposal method within the jurisdiction [14 California Code of Regulations, 18737.2(b)]. Thus, this component will primarily discuss tires, white goods, and inert solids.

The special wastes alternatives addressed in this component for the City include tires, white goods, and inert solids. The solid waste generation study identified that these waste types are generated in Lodi. Sewage sludge, abandoned vehicles, asbestos, and dead animals are also handled within the City; however, they were not encountered in the County's waste characterization study for Lodi and are therefore **not** discussed in this component.

Lodi's solid waste disposal facility is North County Landfill. The landfill accepts the following special wastes: tires, white goods, and small (bagged) dead animals. The nearby Class II Forward, Inc. Landfill in neighboring Stockton accepts asbestos. Forward, Inc. Landfill is a privately owned and operated, fully permitted Class II and Class III landfill/treatment/recycling facility. It is located in San Joaquin County near Stockton. Forward, Inc. Landfill is **permitted** to accept asbestos, contaminated soil ash, treated wood waste, shredder waste, and sewage and wastewater treatment sludge in addition to commercial, industrial and construction/demolition wastes. Neither landfill accepts sewage sludge or abandoned vehicles. However, abandoned vehicles are dealt with effectively by existing methods which are described below.

6.2 Goals and Objectives

The City has developed the following short-term goal related to special wastes: provide opportunities for recycling special wastes generated within the City. The City's medium-term goal is the review of the programs developed for handling special wastes and expand or revise these programs as necessary to meet the state-mandated diversion rates.

Based on data from the solid waste generation study, objectives have been developed for the special wastes currently generated in Lodi. The following objectives are to be implemented during the short-term planning period (1991-1994) and continued during the medium-term planning period (1995-1999):

1. Develop local recycling programs for targeted special wastes by 1992.
2. Eliminate all recyclable special wastes from the wastestream which may be generated within the City and which are disposed of at County disposal sites by 1995.
3. Investigate the feasibility of establishing a waste-to-energy facility which could serve the long-term needs of the City by 1993.
4. Develop programs to reduce the hazard potential of special wastes generated within the City of Lodi by 1995.

6.2.1 Targeted Materials

White goods are targeted for diversion due to their potential hazard, volume, and weight. The County's waste characterization study for Lodi showed that less than 1 percent (or 666 tons) of the wastes disposed of by Lodi residents in 1990 was white goods. Tires are also targeted for diversion in Lodi due to their potential hazard and volume, and because they are made of nonrenewable resources. Tires comprised between 1 and 2 percent (approximately 1,100 tons) of Lodi's landfilled wastes. Inert solids are also targeted wastes because they comprise a significant percentage of Lodi's existing diversion and quantities diverted can vary from year to year depending upon local construction and demolition projects.

6.3 Existing Conditions Description

This section describes special wastes and some current management practices for those wastes that are utilized in the City. This section also provides a discussion of those special wastes for which there is currently no permitted handling or disposal facility. Current special waste management practices that divert special wastes from the landfill will continue through the short-term and medium-term planning periods. None of the existing special waste programs will be either (1) decreased in scope or (2) expanded.

6.3.1 Tires

Used tires pose special handling and disposal problems. For example, stockpiled used tires can collect rainwater and serve as breeding grounds for disease vectors; they can also pose a fire hazard. Tires disposed of in a landfill near the surface tend to "float" to the surface, thereby interrupting landfill cover. They can cause differential landfill settlement if concentrated in one area of the landfill.

Tires are considered nonputrescible waste and, therefore, can be accepted at Class III or unclassified landfills. San Joaquin County's North County Landfill accepts used tires for a fee of \$1.00 per tire for car and \$3.00 per tire for truck tires. The collected tires are stockpiled at Harney Lane Sanitary Landfill. Oxford Tire Recycling (Oxford) of northern California removes the tire stockpile once a month. In 1990, approximately 77 tons of tires were reused or retreaded, 226 tons were transformed, and 1,192 tons of tires were landfilled at Harney Lane Landfill.

Oxford receives the tires at its facility in Union City, California, where the tires are separated for delivery to appropriate end use. Tires in good condition are resold, and casings that can be used for retreaded tires are taken to tire distributors. In the past, tires were also ground to manufacture tire-derived products such as playground covering, floor mats, dock bumpers, floor tiles, and asphalt rubber and rubber modified asphalt.

However, present-day economics have made it more cost effective to use the tires for producing energy than to use the energy to grind them. Thus, tires that are not reused or stripped for their casings are then taken to the tire-to-energy plant in Westley, California. This facility, operated by the Oxford Energy Company, incinerates whole tires to produce steam to generate electricity. This facility plant recovers incineration by-products

that include fly ash and gypsum. The fly ash containing zinc is shipped to a smelting facility. Gypsum has nonagricultural land applications. Slag from the steel and fiberglass belts in the tires is recovered and used for road base (i.e., under asphalt). The slag is 95 percent ferrous.

Oxford estimates that 25 percent of the collected tires are either resold or used for casings, and 75 percent are used as tire-derived fuel for generation of electricity. However, transformed waste cannot be counted towards the state-mandated diversion rates. By-products of the electricity generation process include 4 tons of gypsum, 8 tons of zinc, and 13 tons of steel for every 100 tons of tires transformed. It is unclear at this time whether the reuse of these transformation by-products will qualify as diversion as defined in current statutes and regulations.

6.3.2 White Goods

White goods are large appliances (such as washers, dryers, and refrigerators) that have entered the wastestream. White goods have special handling requirements because of their large size and weight and because they may contain polychlorinated biphenyls (PCBs) and chlorofluorocarbons (CFCs). PCBs are a known human carcinogen, and CFCs have been shown to break down the stratospheric ozone layer.

The electrical capacitors and cooling units should be removed before the white goods are placed in a landfill. White goods must be thoroughly **crushed** before burial to avoid refuse bridging, which can cause **uneven** compaction of the refuse fill. If the electrical capacitors and cooling units are not removed before crushing, PCBs and CFCs could be released into the environment.

White goods are accepted and placed with **metal waste** in drop boxes at Harney Lane Landfill. Stockpiled white goods are picked up by LMC Metals of Stockton. The white goods are sent on to Oakland, along with other scrap metal. The facility in Oakland removes the various recyclable materials. According to the recycling survey, approximately 1 ton of white goods from Lodi are diverted each year at the recycling center. Over 720 tons of white goods generated within the City were disposed of at the Harney Lane Landfill in 1990.

6.3.7 Construction/Demolition Wastes

Ramrock Environmental Recycling Company, Inc. (Ramrock) recycles asphalt, broken concrete, and reinforced concrete at its facility off of Highway 12. Ramrock's offices are in the neighboring community of Rockford. Ramrock is working closely with the City, the County, neighboring communities, and the California Department of Transportation to develop markets for its materials. The amount of material generated each year (and diverted) is difficult to predict since it is highly dependent upon local construction and demolition activity. In 1990, Ramrock claimed to divert 45,000 tons of inert solids. The material was ground and revised as road-base material for local and regional construction projects according to Ramrock officials.

6.4 Evaluation of Alternatives

The alternatives evaluated in this section address the objective of establishing programs to divert, to the extent feasible, special wastes from the disposal wastestream.

The following special waste alternatives are evaluated below based on the evaluation approach described in Appendix B. As presented in Section 18733.3 of Article 6.2 of Title 14, the evaluation criteria are as follows:

- effectiveness
- hazard
- ability to accommodate change
- consequences on the wastestream
- implementation period
- facility requirements
- consistency with local plans and policies
- institutional barriers
- estimated cost
- end uses

For each evaluation criterion, a rating of ★★★, ★★, or ★ is assigned, and a discussion of potential issues is given. As structured by the regulations

governing AB 939. some of the criteria by which the alternatives are required to be evaluated are positive in tone (e.g., effectiveness). while others are inherently negative (e.g., hazard). A ★★★ rating for a positive criterion implies a positive rating; on the other hand, a ★★★ rating for a negative criterion corresponds to few or no impacts associated with this potential problem. The rating results of the evaluation are summarized in Table 6-1, which is presented at the end of this section.

The alternatives described in this component only address those targeted wastes for which there is no established formal diversion program. Thus, in the case of inert solids no alternative is discussed since there is a diversion program for those materials. Since historical information is lacking, diversion of inert materials is expected to continue at present levels. However, the City will be working closely with Ramrock officials to develop good records to track diversion and to develop markets for the continued use of those diverted materials.

6.4.1 Alternative 1. White Goods Separation at the CWRS Transfer Station

CWRS had recovered white goods in the past at the Lodi Transfer Station, but found the process time consuming and labor intensive. CWRS in its February 1991 *Integrated Waste Reduction and Recycling Plan* for the City of Lodi stated that it intends to separate white goods at its proposed MRF. The white goods could then be sold to a scrap metal dealer or CWRS staff could dismantle and bale the metals before selling the recyclable materials. At the stockpile area, electrical capacitors, cooling units, insulation, and wiring would be removed. CWRS will be working closely with the San Joaquin County LEA to develop and establish appropriate procedures and methods for collection and disposal of these materials. The electrical capacitors and cooling units can be recycled. The insulation and wiring would be landfilled. The scrap metal would be sold to a scrap metal dealer.

This alternative satisfies the objectives of developing local recycling programs for targeted special wastes to eliminate them from the wastestream and to reduce their hazard potential. Approximately 251 tons per year can be diverted in the short term, and 277 tons per year in the medium term.

This alternative is evaluated consistent with the required criteria. The results of the evaluation are as follows:

Effectiveness. ★★★ This alternative would be effective in diverting white goods from disposal at Harney Lane Landfill.

Hazard. ★★ Hazards are known and can be controlled.

Ability to accommodate change. ★★ The scrap metal market is affected by changing social, technical, or economic conditions.

Consequences on the wastestream. ★★★ This alternative is not expected to affect waste generation.

Implementation period. ★★★ Implementation of this alternative can be accomplished in the short term.

Facility requirements. ★★★ No additional facilities are required to implement this alternative, although it is planned to be implemented in conjunction with the establishment of CWRS' MRF.

Consistency with local plans and policies. ★★★ This is consistent with CWRS' plans to expand its activities into the collection and handling of white goods at its proposed MRF.

Institutional barriers. ★★ Laws concerning hazardous wastes (PCBs and CFCs) can impact the economics of recycling the electrical capacitors and cooling units.

Estimated cost. Unknown. Costs for separation area, storage, and handling are being developed by CWRS and are not available at this time.

End uses. ★★★ Historically, scrap metal markets have been fairly stable. However, these markets do fluctuate in response to changing economic conditions.

6.4.2 Alternative 2 Used Tire Separation at the CWRS Transfer Station

CWRS personnel have indicated they have plans to separate tires from wastes received at the Lodi Transfer Station. CWRS will sell the tires to Oxford. Stockpiled tires can then be recovered by a tire recycler, with the stipulation that the tire recycler find the best use for used tires based on the condition of the individual tires. Used tires can be physically reused

(resold, artificial reefs, erosion control), converted to tire derived products (playground mats, dock protection), or can be incinerated for energy.

Presently, many of the local automotive businesses and the dealers make their own arrangements with Oxford to collect tires. However, because of CWRS' exclusive collection franchise in Lodi, CWRS could assume this role. Because the tires would all be consolidated by CWRS, there could be some economies of scale achieved in terms of transporting tires to the Oxford facility.

Additional diversion of tires is projected to be 331 tons Per year in the short term and 443 tons per year in the medium term.

This alternative satisfies the objectives of developing local recycling programs for targeted special wastes to eliminate them from the wastestream and to reduce their hazard potential.

This alternative is evaluated consistent with the required criteria. The results of the evaluation are as follows:

Effectiveness. ★★★ This alternative would be effective in diverting tires from disposal.

Hazard. ★★ Hazards, such as fire, are known and can be controlled.

Ability to accommodate change. ★★ This alternative is flexible to change. Oxford will always accept those tires that would exceed the stockpile limit at CWRS.

Consequences on the wastestream. ★★★ This alternative is not expected to affect waste type generation.

Implementation period. ★★★ Implementation of this alternative can be accomplished in the short term.

Facility requirements. ★★★ No additional facilities are required to implement this alternative.

Consistency with local plans and policies. ★★★ This alternative is consistent with CWRS' plans for tire diversion in Lodi.

Institutional barriers. ★★★ There are no known institutional barriers to this alternative.

Estimated cost. Unknown. costs for storage and handling are being provided by CWRs and are not available at this time.

End uses. ★★ The market for used tires is relatively unstable.

6.4.3 Alternative 3. Feasibility Study for a Waste-to-Energy (WTE) Facility

In 1986, Dave Vaccarella, president of CWRs, completed a preliminary WTE feasibility study to determine whether WTE would be an option CWRs could pursue. At that time, such a facility was deemed infeasible by CWRs. However, the City's task force has recommended that the issue be reexamined in brief before dismissing WTE as impractical.

When considering WTE, it is important to note that AB 939 does not allow transformation methods to count towards the initial 25 percent mandated waste reduction, and only a 10 percent diversion can count after 1995 toward the required 50 percent diversion by 2000 amount. However, members of the Lodi solid waste management task force want to consider this alternative to advance their ultimate goal of maximum landfill diversion. Their first goal is to recycle, reduce, and reuse. Their secondary goal is to reduce the waste disposed of in landfills. Thus from their perspective, a facility with front-end diversion of recyclables is a viable alternative in an integrated waste management system, where the intent is to divert materials to their highest and best use and minimize materials which are land-filled.

The City of Lodi has several features which may make a WTE facility desirable. These include

- a municipal electrical utility which can be the long-term market for base-load power
- increasing costs to purchase power from the various suppliers currently serving the municipal electrical utility
- plans to install a power plant at the White Slough facility, which is located adjacent to the power grid
- a proposed MRF to function as a front-end separation point

- for indication of local interest to partially or fully finance such a facility
- a focus on remaining low/no treating value materials from the wastestream as part of the **SRRE**. such as bottles. cans, yard waste, metals. food wastes. and inerts

City staff intend to conduct a very conceptual feasibility study of the **con-**cept, and work with the City solid waste management task force to determine how this option should be expanded.

This alternative satisfies the objective to investigate the feasibility of establishing a **WTE** facility to serve the long-term needs of the City.

Effectiveness in reducing quantity **of** targeted materials. Not applicable. A **WTE** feasibility study will not have a direct impact on **targeted materials** ~~at~~ this time.

Hazard. **★★★** There are no hazards associated with a feasibility study.

Ability to accommodate change. **★★★** This alternative is controversial because the state's integrated waste management hierarchy is structured to discourage **WTE**. There are also many environmental groups which actively lobby the state legislature and **CIWMB** to discourage any **type** of transformation project in an integrated waste management system. **If** a **WTE** facility were to be constructed, it would not easily accommodate changing economic. technologic, or social conditions because of the large capital investment required. However, at the feasibility stage, flexibility in evaluating concepts and technologies is high.

Consequences on the wastestream. **★★★** A feasibility study is not expected to affect waste generation.

Implementation. **★★★** Implementation of this alternative **is** planned for near the end of the short-term planning period.

Facility **requirements**. Not applicable for a feasibility study.

Consistency **with** local plans and policies. **★★★** The City's task force has expressed its desire to further evaluate the feasibility of **WTE** **as** an alternative to landfill disposal.

Institutional **barriers**. **★★** Environmental groups in Lodi and surrounding areas and local citizens could resist a feasibility study being conducted.

However, these are partially offset by active support from the City's task force.

Estimated cost. ★★★ The costs for a conceptual feasibility study conducted by City staff have been estimated by the Lodi solid waste management task force to be \$2,000 to \$3,500.

End uses. Not applicable for a feasibility study.

6.5 Selection of Program

This section identifies the new programs that have been selected to be implemented in the City, a discussion of why the program(s) were selected, and a description of the quantities and types of wastes anticipated to be diverted, applicable end uses, handling and disposal methods, and facilities to be utilized for implementation.

The selection of programs was based on the results of the alternatives evaluation and the ease of implementation in the City.

6.5.1 Selected Alternatives

The alternatives selected for implementation are tire separation and white goods separation and investigating the feasibility of establishing a WTE facility. White goods and tire separation alternatives were selected because both of these special wastes were found in the waste generation study and CWRS already has indicated they intend to divert these materials. The WTE feasibility study alternative was selected because reducing waste disposed is an important goal for the City. Further study of this option is warranted. The evaluation results indicate that all of the alternatives selected are reasonable and appropriate for Lodi's special waste needs. These alternatives are consistent with the City's stated objectives.

6.5.2 Quantities and Types of Wastes Anticipated to be Diverted

Increased diversion from proposed new programs

White goods diversion

| | |
|--------------|--------------------------|
| Short term: | 250 tons per year |
| Medium term: | 420 to 736 tons per year |

Tire separation

| | |
|--------------|-------------------|
| Short term: | 331 tons per year |
| Medium term: | 443 tons per year |

WTE feasibility

None attributable until after feasibility is confirmed.

Diverslon from existng programs

White goods

| | |
|--------------|----------------|
| Shon term: | 1 ton per year |
| Medium term: | 1 ton per year |

Tire separation

| | |
|--------------|------------------|
| Short term: | 84 tons per year |
| Medium term: | 93 tons per year |

Total **anticipated diversion for special** wastes

| | |
|--------------|-------------------|
| Short term: | 416 tons per year |
| Medium term: | 537 tons per year |

The percentage towards diversion goals will be approximately 0.55 per-cent for both the short- and medium-term planning periods.

6.5.3 Applicable End Uses

Ends uses for the tires include retreading and reuse. Tires can **also** be **used as** fuel although they cannot be counted toward A0 **939's 1994** diversion goals. Metals from white goods can be recycled. Oil from **motors** can be drained, **collected**, and **recycled** for reuse.

6.5.4 Handling and Disposal Methods

Ideally, **all** tires and white goods should be diverted through these **pro-**grams although, to be conservative, a 50 percent capture rate could be assumed. Those that cannot be **diverted** by CWRS will **most** likely be diverted by the County at the nearby North County Recycling Facility and Landfill.

6.5.5 Facilities to be Utilized for Implementation

The City is not planning to develop any new facilities to implement these alternatives other than those proposed by CWRS as discussed in the previous sections.

6.6 Program Implementation

This section presents an identification of the organizations responsible for implementation, tasks necessary to implement the selected programs, short-term and medium-term planning period implementation schedules, and implementation costs.

6.6.1 Organizations Responsible for Implementation

CWRS has expressed its intent to undertake diversion of both white goods and tires. The City Manager's office will be responsible for conducting the WTE feasibility study.

6.6.2 Tasks Necessary to Implement Program

Tasks that are required for implementation include (1) discussions with CWRS to establish an acceptable method to separate tires and white goods from the refuse and (2) completion of a conceptual WTE feasibility study by City staff. Should conceptual feasibility for WTE be confirmed, then the City should retain a qualified consultant. These tasks will all be completed in the short term. Table 6-2 illustrates the tasks required.

6.6.3 Short-term and Medium-term Planning Period Implementation Schedule

Table 6-2 illustrates the implementation schedule. Separation of these special wastes can be accomplished in the short term. The feasibility study can also be completed within this time period.

6.6.4 Implementation Costs, Revenues, and Revenue Sources

Costs for implementing tire and white good separation are being developed by CWRS and are not available at this time. Revenues from the sale of the scrap metal and tires will help CWRS offset the costs of the separation programs. CWRS will pass any costs on to the rate payers to the extent allowed by the Lodi City Council.

6.7 Monitoring and Evaluation

6.7.1 Methods to Quantify and Monitor Achievement of Objectives

The following methods will be used to monitor the achievement of the objectives identified in Section 6.2 and to quantify diversion rates from landfills, transformation facilities, and reduction of waste hazards. Quantification will be in volume or weight and in percent of total waste generated.

- Track the quantity of tires and white goods diverted by means of accurate recordkeeping practices.
- Monitor the markets to which the tires and white goods are diverted so that they are not being disposed of.
- Perform waste disposal characterization studies targeting special waste.
- Review the results from WTE feasibility study.

6.7.2 Criteria for Evaluating Programs' Effectiveness

The City will evaluate the success of the special waste programs by the following criteria:

- Are the objectives of the special waste component being achieved?
- Was implementation of the alternative accomplished on schedule?
- Are special wastes being managed in a way that minimizes hazards to public health and safety and the environment?
- Are special wastes managed consistent with applicable permits and regulations?

6.7.3 Responsible Parties for Monitoring, Evaluating, and Reporting

The City Manager's office is responsible for managing solid waste. It would also be responsible for monitoring, evaluating, and reporting the effectiveness of the alternative program implemented.

6.7.4 Monitoring and Evaluation of **Funding Requirements**

CWRS will be required by the City to keep records of tire and white good quantities. These quantities will be reported to the City. Also, development of the request for proposals and coordinating with the consultant hired to conduct the feasibility study will take staff time. Funding requirements for these activities will be updated annually. See the funding component. Sections 9.1, 9.2. and **9.3** and Tables 9-1 and 9-2 for ~~more~~ details.

6.7.5 Measures to be Implemented ~~If~~ Special Waste Objectives are Not Achieved

The following **measures will** be implemented if the objectives identified in Section **6.2** are not achieved:

- require that all special waste generated in ~~Lodi~~ be diverted to the CWRS ~~transfer/material~~ recovery station.
- ~~locate~~ additional end uses if anticipated end uses are not available
- increase frequency of ~~monitoring/review~~ of CWRS program
- modify objectives or diversion alternatives

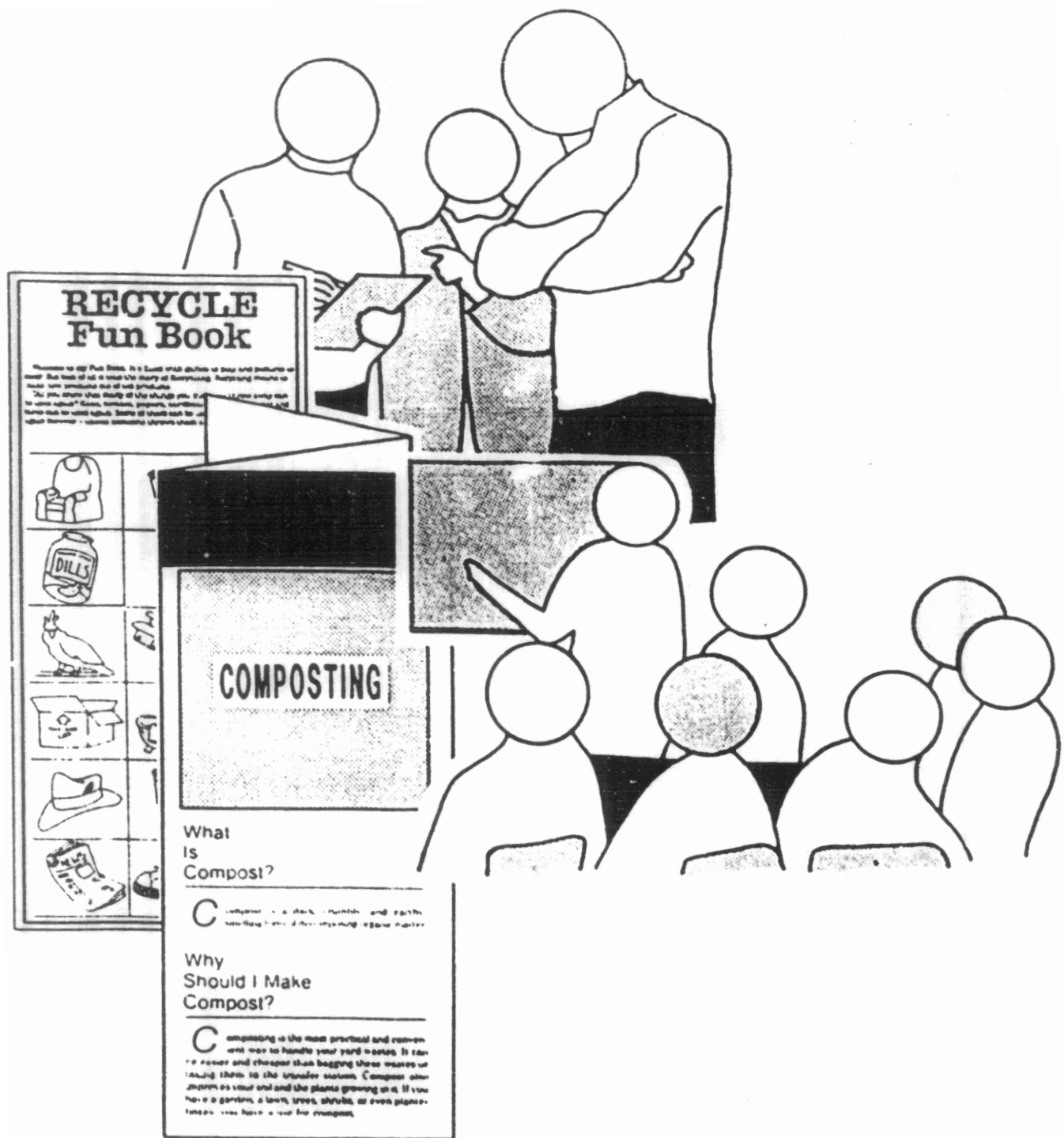
| | Evaluation Criteria | | | | | |
|---|---------------------|--------|-------------|---------------------------------------|--------------------------|--------------------------|
| Program Alternatives | Effectiveness | Hazard | Flexibility | Consequences on the Wastestream | Implementation Period | Facility Requirements |
| <u>Alternative 1</u> | | | | | | |
| White Goods Separation at CWRs | *** | ** | ** | *** | *** | *** |
| <u>Alternative 2</u> | | | | | | |
| Used Tire Separation at CWRs | *** | ** | ** | *** | *** | *** |
| <u>Alternative 3</u> | | | | | | |
| Waste-to-Energy Facility Feasibility Study | NA | *** | *** | *** | *** | NA |
| | | | | | | |

Table 6-1
Summary of Alternatives Evaluation
 (continued)

| | Additional Considerations | | | |
|---|---|---------------------------|-------------------|-------------|
| | Consistency with Local Plans and Policies | Institutional Barriers | Estimated Cost | End uses |
| <u>Alternative 1</u> | | | | |
| White Good Separation at CWRs | *** | | Unknown | *** |
| <u>Alternative 2</u> | | ** | | |
| Used Tire Separation at CWRs | *** | *** | Unknown | ** |
| <u>Alternative 3</u> | | | | |
| Waste-to-Energy Facility Feasibility Study | *** | ** | *** | NA |
| NA = not applicable | | | | |

Table 6-2
Calendar of Special Waste Tasks

| Targeted Waste | Type of Program | Implementation Tasks | Date |
|---|--|--|------|
| <u>Short-term Planning Period (1991-1994)</u> | | | |
| Tires | Separate tires at CWRS | Develop method to separate incoming waste and store tires. set prices for tire disposal at CWRS. make arrangements for transportation to processing facility. | 1992 |
| White Goods | White goods separation at CWRS | Develop method to separate incoming waste and store white goods. set prices for white goods incoming to CWRS. make arrangements for transportation for processing. | 1992 |
| Nonrecyclable and Noncompostable Wastes | Develop feasibility study for a Lodi waste-to-energy plant | Develop a conceptual feasibility study, report results to local task force and City Council. | 1992 |
| <u>Medium-term Planning Period (1995-1999)</u> | | | |
| | | Re-evaluate program needs and expand programs as necessary | |



EDUCATION AND PUBLIC INFORMATION

7 EDUCATION AND PUBLIC INFORMATION COMPONENT

7.1 Introduction

The City of Lodi intends to encourage its citizens to develop waste reduction behavior through increased education and public information. The City intends to foster a positive environment which encourages and rewards a waste reduction ethic in the community. By drawing upon a sense of community and a desire to create a viable environment for future generations, a proactive education and public information program about integrated solid waste management will play a significant role in the success of Lodi's waste reduction programs.

Education and public information are separate mechanisms that work together towards a common goal. Education is an ongoing activity that explains, through knowledge and awareness, why waste reduction programs are necessary. Public information is a method of letting the public know how to effectively participate in programs. Both ongoing education and public information are essential to the successful implementation of the source reduction, recycling, composting, funding, special waste, facility capacity, and integration components of the SRRE. The education and public information component is thus the mechanism that facilitates the success of all the other SRRE components. Lodi's franchise refuse hauler, California Waste Removal Systems, has an excellent ongoing program to educate and inform the public about solid waste management issues. CWRS is proceeding with an aggressive and proactive campaign to expand and improve upon its current programs. With the programs outlined in these components, the City will continue to foster and encourage CWRS ongoing efforts and will also begin to take a more active role in educating and informing the public about solid waste issues.

Changing the behavior of the community as a whole is an essential component of these programs. In order to reach state-mandated waste reduc-

tion goals of 25 and 50 percent, Lodi must reach all sectors of its population with effective public information activities in the community.

This component presents education and public information objectives and identifies CWRs' existing programs and proposed education and public information activities for achieving Lodi's objectives.

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

72 Goals

The City established the following short-term goals for public education and information:

1. Encourage and maintain public information and education programs in the community in order to heighten public knowledge and awareness of solid waste management issues.
2. Involve private solid waste refuse collectors, recyclers, citizen action groups, and other interested parties in the integrated solid waste management planning process and the implementation of necessary programs.
3. Support and encourage interjurisdictional cooperation in integrated waste management planning and implementation.
4. Promote and support public/private partnerships which work to achieve integrated solid waste management in Lodi. Goals for the medium term are related to reviewing each program for effectiveness and revising or modifying the programs as needed to meet the diversion goals.

Goals for the medium term are related to reviewing each program for effectiveness and revising or modifying the programs, as needed, to meet the diversion goals of this SRRE.

7.3 Component Objectives

The City has developed the following education and public information objectives to be implemented in the short-term planning period (1991 through 1995) and continue during the medium-term planning period (1995 through 1999).

1. Increase and maintain citizen awareness of the need to reduce, reuse, and recycle.
2. Increase the number of people participating in programs for source reduction, recycling, and composting through the following activities:
 - a. Continue and expand CWRS' existing waste audit programs for business and commercial establishments.
 - b. Coordinate with local community ~~service~~ business organizations and San Joaquin County in developing public outreach materials to be ~~distributed~~ at public events which present a consistent message capable of reaching a broad cross section of City residents.
 - c. Expand upon CWRS' existing ~~speakers'~~ bureau to include City staff and local/regional refuse haulers and recyclers for schools, community groups, and business groups to disseminate information concerning local solid waste issues and new technologies.
 - d. Develop additional educational brochures and other easily read materials (to supplement CWRS' existing materials) that can be included as inserts with local utility bills, as well as distributed via events, public presentations (e.g., to schools and business groups), and special mailings.
 - e. Continue dissemination of promotional materials including CWRS' posters, book covers, pencils, magnets, buttons, and stickers.
 - f. Establish City-sponsored public recognition, awards, contests, and displays designed to encourage businesses to recycle and reduce their wastes by 1992.
 - g. Establish a block leader or similar program to encourage a network of citizen recyclers. The City will investigate the feasibility of using existing volunteer community service officers for this purpose.
 - h. Establish a public education program aimed at multi-family dwellers.
 - i. Establish a "new resident" education and information packet describing the City's source reduction, recycling, and composting programs.

- j. Establish an ongoing communications program with different sectors of the community (e.g., residents and businesses) about local solid waste issues through either a regular City-sponsored newsletter or a column in the local newspaper by 1991.
- k. Use the City's source reduction program as an example; conduct public information programs which identify methods to increase source reduction.
- l. Integrate environmental concerns and solutions to the solid waste crisis across the curricula for all schools within the Lodi Unified School District by 1993 and for all private and parochial schools by 1994.

7.4 Existing Conditions Description

The City solid waste management task force has established a public information subcommittee. This subcommittee is presently investigating methods to expand the City's public involvement efforts and has sponsored a column, 'Wasteline,' about solid waste issues in the Lodi Sentinel. Working together, the City government, the City's task force, and CWRS will develop more education and public information programs to supplement the existing programs. To date, CWRS has been the only entity conducting public education and information programs in Lodi on source reduction, recycling, and composting. CWRS will continue to implement and expand its education and information programs. However, the City, through the solid waste management task force and the public information subcommittee, intends to take a more active role in the public education and information programs.

The following section provides a brief description of education and public information programs presently conducted by CWRS and provided to City businesses, schools, and organizations.

7.4.1 City-sponsored Residential and Commercial Programs

The City Solid Waste Management Task Force has recently established a column in the local newspaper called "Wasteline" to educate and inform residents about the City's recycling efforts. The column tracks the City's progress towards meeting its recycling goals.

The Lodi Unified School District science task force, working with CWRS, has developed a recycling educational program. See Section 7.4.2 below for more details.

Also, the City does have a fall municipal leaf program which it publicizes by placing an announcement with a schedule in the Lodi Sentinel. Also, the street superintendent explains the program on a local television station. Residents place their leaves by the curb. CWRS uses the leaves in its composting program.

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

7.4.2 Residential and Commercial Programs (Sponsored by CWRS)

Office paper recycling program. CWRS has a recycling program for office white paper that requires each participating business to designate one or more employees as the recycling coordinator. The coordinator oversees and encourages all other employees to be aware of and participate in the company recycling plan. CWRS also sponsors a program for white office paper in all schools and local school district offices. CWRS also gives presentations to all grade levels. Other school activities such as field trips, literature, and science equipment are partially funded from the sale of recyclables from the curbside recycling program. CWRS' school programs include schools in the Lodi Unified School District and local parochial and private schools.

School education programs. CWRS and the Lodi Unified School District science task force have developed a recycling educational program which has been approved by the state of California. The program includes kindergarten through eighth grade classroom science lessons about recycling and the preservation of natural resources. Each student is given a "People Who Care" storybook and a "Recycling Ranger" certificate. The school program also includes presentations given by CWRS to school assemblies in which students participate in a skit about how recycling newspaper saves trees. The program also provides receptacles for collection of newspapers and aluminum cans at the schools to reinforce the lessons learned in school. The funds from the sale of the materials are used for extracurricular student activities.

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

Community accounts programs. **CWRS** operates a community accounts program that allows public and private schools in **Lodi**, clubs, churches, and other nonprofit organizations to receive the funds from their recyclables for their organization. **CWRS** provides containers for the recyclables. The organization collects the recyclables. **CWRS** then collects the containers and credits the organization with the prevailing market rate. Alternatively, the organization can take the recyclables themselves to one of the buy-back centers operated by **CWRS**, where **CWRS** will weigh the materials and credit their community account.

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

Speakers' bureau. **CWRS** has a speakers' bureau to provide technical assistance and education to interested businesses/groups. **CWRS** conducts waste audits of local businesses to help them determine what they can recycle and reduce from their wastestream.

Other **CWRS** public information programs. **CWRS** has used public television to disseminate information about its recycling services and programs. **CWRS** also uses advertisements and press releases as well as door hangers to disseminate information for residents explaining **CWRS** services.

CWRS uses surveys to get customers feedback about its programs. They have had a 40 percent response rate for past surveys. **CWRS** also has a new residents program to educate new customers about its services. Examples of **CWRS'** public education and information materials are included in Appendix D.

7.5 Program Selection

The following section provides a summary of education and public information programs selected by the City to augment the existing programs. The programs are categorized into four categories: communication, outreach, technical assistance, and campaigns. The implementation of these

programs and their integration with source reduction, recycling, and composting activities is outlined in the integration component.

7.5.1 Public information and Outreach

Educational brochures and materials. There are many topics and types of brochures, **flyers**, and pamphlets that can be used to **educate** community members about source reduction, recycling, composting, and special waste management. One-page flyers can be **distributed** at **public** event presentations or by special mailings. This can be cost effective (assuming the flyer weighs **very** little), since it allows more information to be mailed for the same total postage cost. Inserts **can** be about **upcoming** events, presentations, field trips, how to stop receiving junk mail, ways to source reduce waste, and prepare **recyclables** for disposal.

CWRS distributes promotional and educational **materials** such as flyers, door hangers, and brochures. These brochures **will** continue to be distributed by participating nonprofit associations, the solid waste task force, senior citizen committees, CWRS field operators, and City Staff. Those services provided **as** part of the programs offered by CWRS are intended to be recovered through the rate base.

This program satisfies the local task force public education and **information** objective **2k**.

Media Involvement. Virtually every radio and television station offers free air time to nonprofit organizations to announce an event or present an issue. For example, Channels **3** and **13** provide this service. The City, through its solid waste management task force, will take advantage of this by working with **local** service **organizations** to sponsor public service announcements. In addition, the City will notify local newspapers about upcoming programs or events and prepare news releases which provide background information. In many cases, this could lead to a **feature** article.

The City Solid Waste Management Task Force is presently investigating the use of radio announcements to target the City's Hispanic community and get them involved in the City's **recycling** efforts.

CWRS currently contacts media to cover major events and programs which they sponsor or undertake. CWRS plans to continue to use the media whenever possible to promote its activities and programs.

Speakers' bureau. CWRS has indicated a willingness to **expand** its speakers' bureau to include City staff and regional reuse haulers and recyclers to provide information to groups wanting to learn about **local** and regional solid waste issues **and** new technologies, as well as other aspects of source reduction and recycling. Alternatively, the **City could** establish its own speakers' bureau to augment CWRS'. The City or **CWRS** should publish a list of selected topics and guest **lecturers** in the local newspaper. In addition, the City task force will request that the **Lodi Sentinel** prepare a feature article which reports on each of the lectures.

This program satisfies the City's public education and information objectives **2c** and **2d**.

Newsletter. The City, through the solid waste management task **force**, will establish an outreach effort aimed at both the residents and business sectors of the community either by **developing** a newsletter or **adding** a section on **solid** waste issues to the City's current newsletter which focuses on **electricity** and **water** issues.

CWRS recently **issued** a newsletter which promotes its **services** **and** programs. CWRS hopes to recover the cost of this public service through the rate base. The City and **CWRS** should coordinate their **newsletters** to avoid duplication of effort. The newsletters could contain information on solid waste issues, **as** well as other environmental issues, such **as** water and energy **conservation**, transportation, and pollution. The broader the scope, the more likely residents will read it.

This program satisfies the public education and information objective **2j**.

Coordination with **City community groups**. The **City**, through the **solid** waste management task force, proposes to work **closely** with community groups, organizations, and San Joaquin County to develop and disseminate information about **local** **and** regional waste management issues. CWRS intends to continue its work with the **Lodi Unified School District**, **as** well **as** coordinate efforts with the citizens of **Lodi**, the solid waste **task** force, and the City. CWRS has indicated that it will continue to employ Lodi residents and make special arrangements to provide employment to senior and handicapped citizens.

In order to enlist the assistance of these groups, it will first be necessary to educate and inform them about the solid waste management issues. This **will** likely take the form of Presentations to each of these groups on solid

waste topics through the speakers' bureau and block leader programs. Once informed, the name recognition and credibility of community groups such as the Woman's Club, the Sierra Club, the Chamber of Commerce, the League of Women Voters, or community service officers foster the likelihood of broad acceptance of AB 939 programs in the City.

This program satisfies the City's public education and information objective 2b.

Coordination with **nonprofit** organizations. The **City** and CWRS will use volunteer **services** of nonprofit organizations for community outreach, **as** feasible and practical. **These** organizations, such **as** youth groups of all types, and the Boy Scouts of America, serve to augment the **public** education programs. For example, a public education program on recycling, source reduction, and composting could be integrated into the Eagle Scout community service project for the Boy Scouts.

Internship program. Funding an internship program for students from surrounding universities is a cost-effective method of augmenting **City** staff and volunteer groups to implement public education programs. Thus, the City will consider investigating the feasibility of sponsoring a waste reduction internship to provide a community relations opportunity **as** well **as** additional staffing to assist with education and public information programs. Alternatively, **as** part of its active program in area schools, CWRS could implement a summer internship program.

7.52 Technical Assistance Programs

Workshops. Workshops and presentations **will** be offered by the **City** to targeted waste generators. Some of these programs could be videotaped and broadcast on the **local** public access television **station**. The workshop presentations **could** address practical ways to reduce the quantity of wastes generated. Proposed topics could possibly **include** source reduction, business procurement practices, increased manufacturing **efficiency**, backyard **composting** of yard wastes, and contaminant concerns in recycling markets. Another possible topic would be to present the **City's** source reduction program as a model program after it is established. **A** slide show presentation of local or regional model waste reduction programs would be a useful aid for the workshops and programs. It should be mentioned that although CWRS and the City do not endorse backyard composting, **prefer-**

ring instead to use CWRS' program, the City will provide information on backyard composting to those individuals that are interested.

This program satisfies the City's public education and information objective 2k.

Waste audits. Waste audits help commercial and industrial businesses learn specifically how to recycle and reduce their waste by **evaluating** what kind of **waste** they produce. CWRS plans to expand its waste audit program to include all commercial and industrial customers. This would include providing services to apartments, office buildings, **eating** and drinking establishments, wholesale and retail establishments, **food stores**, educational facilities, health services, and others. This program **will** help **involve** the industrial and commercial sectors of the community **in** CWRS' **recycling** and source reduction programs.

This program satisfies the public education and information objective 2a. Also, this program was covered in more detail in the **Source** Reduction Component, Section 3.

Field trips. The City and CWRS will coordinate field trips for students and other interested parties to see various solid waste programs. CWRS plans to expand its Lodi Unified School District program which **currently** includes funds for school field trips. CWRS has plans to **provide** an on-site **classroom** with displays and demonstrations at its new proposed MRF. The class will provide hands-on **activities** for the participants. Recommended field trips include CWRS' classroom at its MRF or a "hands-on" **composting** teaching project at the composting facility. Touring other **successful** and innovative waste reduction operations occurring locally or in nearby communities would allow students to see firsthand how a business recycling program operates. The program will provide public education **about** the composting process by walking through the steps from yard waste decomposition into a finished compost product.

This program satisfies the **public** education and **information** objective 2l.

Guideline booklets. The City will develop or obtain booklets, or both, for use by schools, businesses, government, and residents providing **technical** information on where and how to recycle and source reduce wastes. This will include developing brochures for all municipal employees explaining the nature of the various local recycling programs and how to respond to inquiries. They will also produce updates regarding current

laws and regulations affecting recycling and waste planning and management information. Information on composting. household hazardous waste. tires, oil. and other materials that require special handling will be included. Another educational guide would be to prepare a source reduction shopping checklist for consumers. The checklist would focus on criteria consumers can use when buying products. including durability, reusability, recyclability, and minimal packaging. This information is intended to supplement the printed materials already offered by CWRS.

Solid waste curricula (many of them free) are available for all ages from several sources. For example, the U.S. Environmental Protection Agency publishes free educational materials about solid waste generation and management for grades kindergarten through 12, as does the CIWMB. The states of Washington, Connecticut, and Rhode Island also have school curricula which they will provide to other states or agencies upon request for the cost of reproduction.

This program satisfies the public education and information objective 2c.

7.5.3 Campaigns and Motivating Activities

Kick-off rally. CWRS has indicated that it intends to have a kick-off rally to promote its integrated solid waste management programs and activities. CWRS indicates this will include a full-page advertisement in the Lodi Sentinel announcing the beginning of its program with the date, time, and location of the rally and various promotional programs. The advertisement is intended to encourage participation and enthusiasm among the community for CWRS' recycling and waste reduction programs.

This program satisfies the public education and information objective 2l.

Community posters and flyers. One method to motivate residents is to develop community posters and flyers such as a recycling status sheet similar to the "Wasteline" column in the paper. The status sheet would inform residents about the City's diversion targets for 1995 and 2000 and show the current diversion rate. This information might be accompanied by a waste diversion thermometer. The City has already developed a logo and is tracking progress towards the diversion goals. The progress is noted in the newspaper column entitled "Wasteline." This "thermometer" could also be printed as an insert for the City utility bills or as poster boards placed in highly visible areas around the community, such as the City library display case, the Hutchins Street Square Marquee. post

offices, grocery stores, **and** City buildings. The waste diversion thermometer would **serve** as a **constant** reminder that the City needs **to** continue its vigilant efforts to reduce waste.

CWRS is planning to prepare promotional signs. flyers, posters. bumper stickers. street banners, and t-shirts advertising the various recycling services and programs it offers. Other promotional materials proposed by CWRS include book covers. pencils, magnets. buttons. and stickers.

This program satisfies the public education and information objective 2e.

Block leader program. The **City** will evaluate establishing a block leader or similar program to encourage a network of citizens working together to recycle. The program could use community service officers **as** a **corner-stone** of the program. A **community service** officer could be designated to motivate and encourage people in an area to recycle. source reduce, and provide information about the *City's* solid waste program describing why and how to participate.

This program satisfies local task force public education and information objectives 2g, 2h, and 2i.

Puollic recognition and awards. Public recognition and **awards** will be used by the City and CWRS to acknowledge businesses that have implemented "model" source reduction and recycling programs. Awards could be given **as** incentives.

Activities designed to increase recycling and source reduction behavior and reward that behavior with public recognition will strengthen the public's awareness of need to recycle. The recognition and award campaigns will be formulated appropriately for the target audience.

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

This program satisfies the public education and **information** objective 2f.

7.6 Targeted Generators

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

CWRS has an aggressive and proactive education and information program which presently targets all waste generators in Lodi. With this SRRE, the City will focus on a broader spectrum of solid waste management than CWRS, whose efforts are more focused on its immediate programs. Together, both CWRS and the City will implement a broad-based public education and information program carefully designed to reach all sectors of Lodi's population.

After reviewing the existing programs and waste characterization data from the solid waste generation study, the City local task force proposes to target the following solid waste generators as recipients of CWRS' and the City's education and public information programs:

- commercial/industrial, including institutional and local government, construction/demolition projects, and hospital and homecare units
- residential, including single-family and multifamily dwellings
- new developers
- schools, including education curricula for grades kindergarten through 12

The commercial and residential sectors generate different quantities and types of waste. Each sector also has its own unique needs; these differing needs will be addressed in the City's education and public information program.

7.7 Program Implementation

7.7.1 Government Agencies Responsible for Implementation

The City manager's office will be responsible for coordinating the overall public education and information efforts for both CWRS and the City so that they are consistent with City goals, objectives, and policies and so that they do not unnecessarily duplicate one another. The City will now take the lead in fostering a positive environment for future source reduction, recycling, and composting activities. The City will be responsible for coordinating all outreach, communication, and media programs.

Because CWRS has been the main provider of solid waste education and information programs in the past, its expertise and knowledge will be invaluable in future programs. CWRS has already developed many plans to further its efforts in recycling and waste diversion as noted in Section 7.7. Thus, CWRS must coordinate with the City so that the programs proposed by CWRS are consistent with City goals and policies.

The City should either designate someone to be responsible for coordinating Lodi's solid waste public education and public information efforts with CWRS or consider contracting for such services. It is key that the City begin coordinating the overall public education and information efforts as soon as possible to capitalize on Lodi's strong sense of community.

CWRS has indicated that it will track its own collection and recycling programs via weekly, bimonthly, and monthly management reviews. CWRS plans to develop a "customer feedback group" for residential, commercial, and industrial sectors to provide feedback on the degree of success achieved in its programs in terms of customer perceptions. They will also look at participation and diversion rates as well as feedback from City Council and staff, the solid waste task force, and field operators.

The City should allocate sufficient resources to organize and coordinate all the public information and education activities, so that they are consistent with City policy and the SRRE goals and objectives. The coordinator should also be responsible for tracking, monitoring, and evaluating the progress of each of the specific programs as they are developed and implemented by either the City or by CWRS.

7.7.2 Actions Necessary to Implement Activities

The tasks necessary to implement the education and public information activities are summarized in Tables 7-1 through 7-3. The implementation tasks are presented for source reduction, recycling, and composting by selected waste reduction programs.

Before Lodi expands its public education program, the City should review its staffing and determine if a new position is warranted or if it can be incorporated into the duties of another position. A job description will need to be developed for this position.

7.7.3 Implementation Schedule

The implementation schedule for the education and public information activities is also presented in Tables 7-1 through 7-3. The implementation schedule for education and public information is presented by each component's selected waste reduction programs.

7.7.4 Implementation Costs

The cost of one additional half-time staff member plus (public/private) program implementation costs are expected to be approximately \$60,000 annually and increase 2 percent per year.

If the City decides to have CWRS conduct all or a portion of the public information and education programs, **CWRS** will ~~recover~~ its costs in the collection rates charged to the customers, which must also be approved by the Lodi City Council.

All revenues from residential recycling, including those which are collected from schools, are to be included in arriving at the methodology for setting collection rates.

7.8 Monitoring and Evaluation

7.8.1 Methods to **Quantify** and Monitor **Achievement** of **Objectives**

The objectives of Lodi's education and public information program are to increase the public's **participation** in **CWRS** waste diversion programs and to heighten awareness of the need to reduce, reuse, compost, and recycle. To monitor the achievement of these objectives, staff will review each program on a regular basis. An example of one monitoring method, which is used by CWRS, involves using a door hanger with a detachable post-Card survey to obtain customer feedback about **CWRS'** ~~curbside~~ recycling program. This survey is in Appendix D. To track the programs, the staff person will review program records ~~or~~ conduct surveys, or both, on a regular basis. If surveys are used, they might be (1) written surveys ~~distributed~~ during program activities or when appropriate and (2) random telephone or shopping mall surveys of the participants or City residents. The random survey will target a representative sample of the public and will focus on the public's awareness of various waste diversion programs available in the City. In addition, the survey will assist in identifying the ~~rel-~~

ative effectiveness of alternative education and public information techniques.

Surveys will also be conducted annually by the City at each of Lodi's local recycling buy-back centers to determine if the number of new residents utilizing the service is increasing. Measurement tools will be an integrated component of public information and education activities. whenever Possible. CWRS will conduct surveys at its own buy-back centers and **will** be required to provide that information to the City.

7.8.2 Written Criteria for Evaluating the Programs' Effectiveness

Lodi will evaluate the effectiveness of the education and public **information** programs by addressing the following issues:

- Have the participation rates in respective waste diversion programs increased and, if **so**, by how much?
- Has the **City/CWRS** received more inquiries about **avail-**able waste diversion services?
- Was there sufficient **City/CWRS** staffing and resources to implement the education and public **information** programs outlined in the SRRE?
- **Do** the targeted generators have a greater awareness of the importance of diverting wastes from land disposal based upon random surveys conducted by **City/CWRS** staff?

7.8.3 Agencies, Organizations, or **Persons** (**or** a Combination) Responsible for the Programs' Monitoring, Evaluating, and Reporting

The City **Manager's office** will **be** responsible **for** monitoring and independently evaluating the effectiveness of the education and public information programs. The City will need to work closely with the Lodi Unified School District and CWRS to independently assess the effectiveness of their programs as well.

7.8.4 Monitoring and Evaluating Funding Requirements, Revenues, and Revenue Sources

Funding is needed for staffing and support services to monitor the effectiveness of the education and information programs implemented in Lodi. Specifically, funding is needed for organizing the development of the programs, recordkeeping, reviewing, and surveying the participation rates of respective waste reduction programs.

The City revenues will come from a surcharge added onto the garbage and water bill the residents receive. These revenues will be for costs of implementing, monitoring, and evaluating the program. CWRS' revenues will come from its rates, which are approved by the City Council. Any rate increase that CWRS requests to cover its costs will be in addition to the funds it donates for public education at local public and private schools.

7.8.5 Contingency Measures

The following measures will be implemented if the education and public information objectives identified in Section 7.2 are not achieved:

- evaluate the need for increased staffing, including a contract employee, additional interns, or part-time/full-time permanent staffing
- revise the job descriptions of staff responsible for education and information
- evaluate the need for increased funding for education and information programs
- modify the education and public information programs that seem to be inadequate
- identify additional education and public information programs for consideration
- consider establishing a special assessment or surcharge on City residents to fund the necessary programs

7.8.6 Monitoring and Reporting Schedule

The City will evaluate the timeline for implementing education and information programs to determine if programs are able to be implemented on schedule. The following items will be addressed:

- time modifications needed to increase staffing levels. including the proposed public education specialist and interns
- time modifications needed to coordinate with volunteer organizations and other jurisdictions for specific programs
- time modifications needed to secure City approval for funding and operation of selected programs

**Table 7-1
Source Reduction
Public Education Activities**

| Program | Program Activities' | Activity Implementation Tasks | Schedule |
|-----------------------------------|---|---|-----------|
| Short-term Planning Period | | | |
| Campaigns | Kick-off rally, local participation events, contests, and displays, block leader program. posters. flyers, public recognition announcements. All the short-term programs will be evaluated and expanded as needed to help meet the diversion goals 1995-1999. | Publicize contest winners and announce public recognition awards, establish block leader program to encourage new resident participation, track and publicize diversion progress with "thermometer" posted in public locations. | 1992 |
| Public Information and Outreach | Junk mail reduction pamphlet. speakers' bureau, educational materials. school curricula, internship program, community and nonprofit groups' assistance. media involvement, utility bill inserts. | Develop and utilize speakers' bureau, purchase and disseminate educational materials, submit newsletter articles, work with school district to develop curricula, develop internship program, coordinate above activities with assistance from community groups and nonprofit groups. | 1992-1993 |
| Technical Assistance | Composting and mulching Information. newsletter. coordination with community groups, workshops. waste audits. field trips. guideline booklets. shopping checklist. | Publicize technical assistance services in newsletter (workshops, brochures, and field trips), disseminate source reduction shopping checklist, coordinate above assistance with community groups. | 1993 |

**Table 7-2
Recycling
Public Education Activities**

| Program | Program Activities* | Activity Implementation Tasks | Schedule |
|---|--|--|-----------------|
| Expand the Curbside Collection Program | Curbside recycling public education, block leader program promotional materials, school curricula, contests and displays, utility bill inserts, media involvement, newsletter. | Kick-off rally to begin program, disseminate promotional and educational materials to schools and community groups, establish a block leader program to encourage new resident participation, implement a 'Buy Recycled' campaign, develop contests and awards, continuously publicize the program. | 1992 |
| Multifamily Dwellings Recycling Programs | Apartment and condominium public education, promotional materials, school curricula, block leader program, contests and displays, utility bill inserts, media involvement, newsletter. | Distribute a multifamily dwelling recycling guide and informational brochures, telephone landlords and homeowners' associations to offer technical assistance, disseminate promotional and educational materials through schools and community groups, implement a 'Buy Recycled' campaign, develop contests and awards, publicize above activities. | 1993 |
| Expand Office Paper Collection Program | Business education, promotional materials, contests and public recognition awards, utility bill inserts, newsletter, newspaper articles. | Distribute business educational pamphlet, develop contests for business recycling, insert program details in utility bills, publicize participants and contest winners. | 1993 |
| *Program activities are described in detail in the text | | | |

**Table 7-2
Recycling
Public Education Activities
(Continued)**

| Program | Program Activities. | Activity Implementation Tasks | Schedule |
|---|---|---|----------|
| Short-term Planning Period | | | |
| Expand Materials Recovery Facility | Newspaper articles, newsletter media announcements, tours | As the expansion takes place, publicize its progress and the reason for the expansion, explain to the public how the MRF will help achieve the diversion goals, announce project completion and give tours of facility, publish information about how well the MRF is doing on a regular basis. | 1993 |
| Develop Zoning and Code Amendments Programs | Newspaper articles, newsletter, media announcements. | As zoning and code amendments are developed, publicize process and reason for the changes, announce the effective date of the amendments, and state how they will help with the recycling goals. | 1994 |
| Create Local Markets for Recycled Products | Newspaper articles, newsletter, media announcements, brochures. | Implement a "Buy Recycled" campaign. once local procurement guidelines are established for Lodi's governmental offices, publicize their completion and encourage businesses to develop their own procurement guidelines. All the short-term programs will be evaluated and expanded as needed to help meet the diversion goals 1996-2000. | 1994 |
| *Program activities are described in detail in the text | | | |

**Table 7-3
Composting
Public Education Activities**

| Program | Program Activities' | Activity Implementation Tasks | Schedule |
|---|---|---|----------|
| Expand CWRS' Windrow Composting System | Newspaper articles, media involvement, newsletter tours. | Publicize ongoing plans and preparations to expand the system. announce completion of the expansion, give tours of facility, disseminate information about compost availability. | 1991 |
| Expand the Residential Curbside Collection Program | Public information program, utility bill inserts, block leader program. | Publicize schedule of collection in newspaper and utility bill inserts. Include information on curbside program in block leader program. publicize availability of compost for use by the public. | 1992 |
| Medium-term Planning Period | | | |
| | | All the short-term programs will be evaluated and expanded as needed to help meet the diversion goals 1996-2000. | |
| *Program activities are described in detail in the text | | | |

**Table 7-4
Special Waste
Public Education Activities**

| Program | Program Activities [*] | Activity Implementation Tasks | Schedule |
|--|---|--|----------|
| Tire Separation Program at CWRS | Newspaper articles , media involvement, newsletter flyers . | Notices in local newspaper and radio to publicize the new program at CWRS, disseminate information about why tire recycling is important. continue to publicize. | 1992 |
| White Goods Separation at CWRS | Newspaper articles, media involvement, newsletter, flyers. | Notices in local newspaper and radio to publicize the new program at CWRS. disseminate information about why white goods recycling is important. | 1992 |
| Medium-term Planning Period | | | |
| | | All the short-term programs will be evaluated and expanded as needed to help meet the diversion goals 1996-2000. | |
| [*] Program activities are described in detail in the text. | | | |

LANDFILL SPECIFICATIONS AND DESIGN PARAMETERS

SIZE

| | |
|---------------------|-----------|
| LANDFILL AREA | 185 ACRES |
| ENTRANCE FACILITIES | 15 ACRES |
| PERIMETER BUFFER | 30 ACRES |
| RIVER AREA | 90 ACRES |

TOTAL PROPERTY AREA 320 ACRES

CAPACITY

| | |
|-----------------------|---------------|
| ABOVE GROUND AIRSPACE | 11,125,000 CY |
| QUARRY MATERIAL | 10,557,000 CY |

TOTAL AIRSPACE 21,682,000 CY

REFUSE CAPACITY DEBRIS CAPACITY

21,882,000 CY
13,129,000 TONS

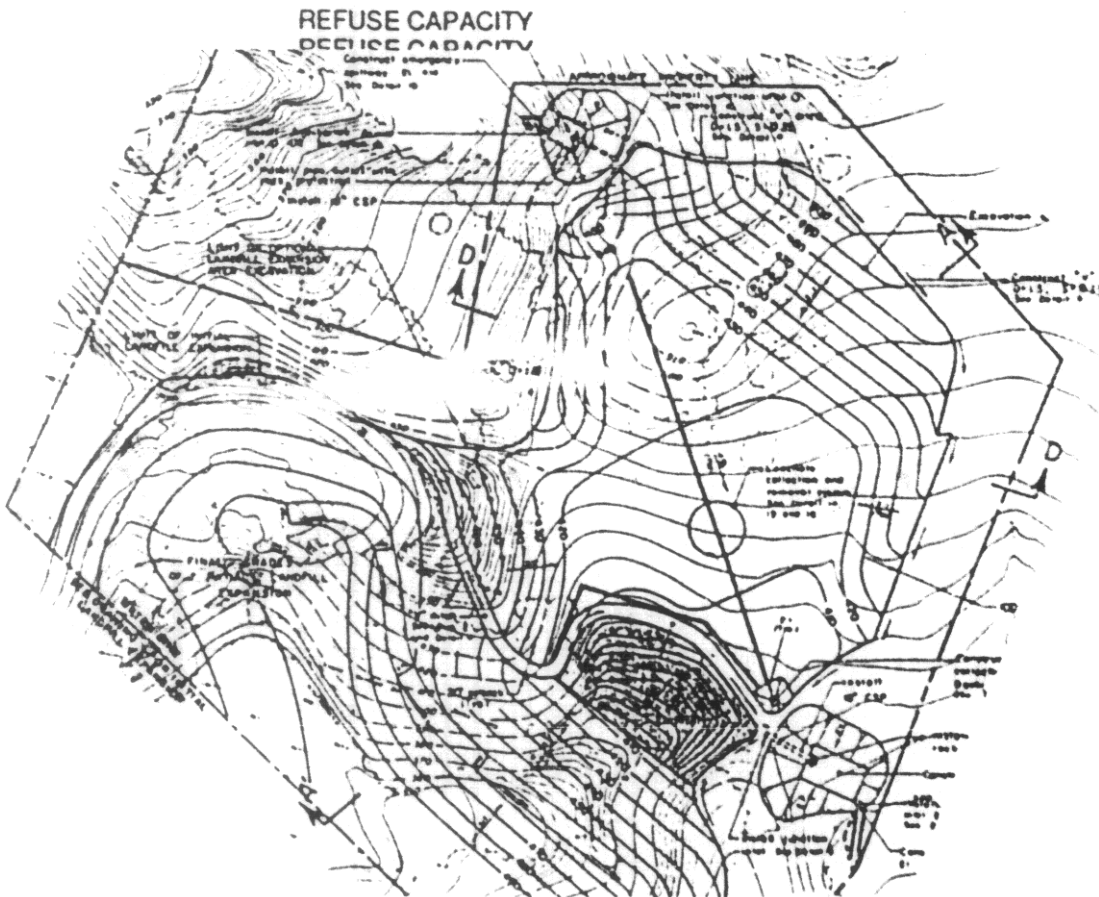
46 YEARS
31 YEARS
23 YEARS

26 YEARS
20 YEARS
16 YEARS

5,470,000 CY
896,000 CY
1,493,000 CY
200,000 CY

3,000,000 CY
5,059,000 CY

63 FEET
32 FEET



DISPOSAL CAPACITY

8 DISPOSAL CAPACITY COMPONENT

integrated waste management includes the environmentally safe disposal of solid wastes that cannot be feasibly diverted from landfilling. Because of the diminishing landfill capacity in the state of California, the Integrated Waste Management Act of 1989 requires that, in its source reduction and recycling elements, jurisdictions identify their current and future solid waste disposal capacity needs. However, there are no permitted waste disposal facilities within the City of Lodi.

This component contains a description of the permitted solid waste disposal facilities which serve Lodi, and an identification of the new facility which will serve Lodi. Also, the California Waste Removal Systems' transfer station is briefly described.

8.1 Existing Permitted Solid Waste Disposal Facilities

8.1.1 Existing Sanitary Landfill

The North County Landfill is the solid waste disposal facility Lodi uses for its municipal waste. It is a Class III landfill and is located at 17916 East Harney Lane in the unincorporated area near Lodi. Total capacity of this site is 16.2 million cubic yards. A public drop-off and recycling center will be located near the entrance. The recycling center will accept most recyclable materials. The site serves the franchised collectors for the City of Lodi, and County Refuse Service Area B, as well as the general public and commercial haulers serving the north part of San Joaquin County.

North County Landfill is owned and operated by San Joaquin County. It currently has capacity to dispose of wastes through 2034. The disposal fees at the site upon opening will be \$16.25 per ton. The facility will have a gatehouse and a truck weigh scale. An office and maintenance building with sanitary facilities will be included as well as a covered building with a tipping area.

North County Landfill is permitted to accept nonhazardous municipal solid waste, which includes wood, paper, plastics, glass, food waste, vegetative waste, construction and demolition debris, inert waste, and other nonhazardous waste.

Harney Lane Sanitary Landfill was the former landfill used by Lodi. A waste characterization study at Harney Lane was conducted by San Joaquin County. A complete characterization of the incoming wastestream is included in the waste characterization study conducted by San Joaquin County Department of Public Works (see Appendix C).

8.1.2 Lodi Transfer Station

CWRS currently operates a solid waste transfer station/materials recovery facility, recycling center, and composting facility at 1333 East Turner Road, Lodi, California. The waste transfer station serves as the point of waste consolidation before refuse is hauled to the North County Landfill and Recycling Center.

The refuse is first sorted by content and materials that include cardboard, newspaper, plastic, cans, metal, wood, rock, garden waste, etc. The remainder is refuse. The remaining refuse is compacted and then loaded into transfer trailers; it is then hauled to the nearby San Joaquin County Landfill.

8.2 Waste Export

The purpose of the disposal capacity component is to demonstrate that there is adequate landfill capacity for disposing of solid wastes which cannot be diverted. The component must include a projection of the amount of disposal capacity that will be needed to accommodate the solid waste generated within the City for a 15-year period. Disposal capacity projections are in Tables 8-1 and 8-2.

The amount of wastes generated over the next 15 years and the in-place refuse volume of those wastes is presented in the study conducted for Lodi by San Joaquin County (see Appendix C).

The County has agreed to provide for disposal of all wastes generated in Lodi which cannot be diverted. A copy of this export agreement is included in Appendix F.

8.3 Disposal Facility Phase Out or Closure

The Harney Lane Sanitary Landfill reached capacity on October 31, 1991. At one time, Lodi owned the Harney Lane Sanitary Landfill. After several agreements between the City and County, dating back to 1975, ownership changed to the County. In January 1975, the City and the County reached an agreement (resolution no. R-75-150) which changed the operation of the Harney Lane Sanitary Landfill from the City's responsibility to the County. The City agreed to lease the landfill to the County for the remainder of its useful life. The County agreed to be responsible for the operation, maintenance, and supervision of the landfill. The City retained the right to dispose of refuse collected from the City at the Harney Lane Landfill.

In March 1980, resolution no. 80-45 stated that the County shall be responsible for providing a solid waste disposal facility or facilities in the north County area to serve residences and businesses in the north County incorporated and unincorporated areas. Adequate solid waste disposal or transportation facilities such as a disposal site or transfer station, or both, will be established by the County within a reasonable proximity to the City in order to serve the need to dispose of solid waste generated within the City's corporate limits." This agreement allows the "City to retain the right to regulate the collection and transportation of all solid waste materials within the corporate limits of the City." Also, the agreement established that "refuse collectors franchised by the City who use County-provided facilities shall pay for disposal services at the rates established by the County." Thus, the agreement established that the County will recover its capital and operating costs through charges to users.

Also in March 1980, the City and County reached a supplemental agreement (resolution no. 80-46) which established specific responsibilities for the development of the state-mandated final site plan. The County and City tasks for developing and implementing the final site plan were clarified.

In April 1987, the City and County reached their existing agreement (resolution no. R-87-324) which transfers ownership of the site from the City to the County. The County agreed to pay the City \$1 as the total Purchase price for the landfill with the understanding that the County will Provide adequate disposal facilities for the City in the north San Joaquin County area. Thus, resolution no. 80-45 will stay in full effect under this

new agreement. The others have been superseded with the County's ownership of the site.

8.4 New Disposal Facility

The County opened its new landfill, the North County Recycling Center and Sanitary Landfill, on November 1, 1991. The new Class III landfill covers 320 acres with 185 acres permitted for landfilling. The landfill is owned and operated by San Joaquin County. For more detail of the new facility, see Section 8.1 - I -

8.5 Disposal Capacity Needs Projection

Tables 8-1 and 8-2 present Lodi's estimated disposal capacity needs assuming diversion continues at current levels and assuming AB 939 goals identified in this SRRE are achieved.

Table 8-1

**CITY OF LODI, CALIFORNIA
SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS PROJECTION (1)
ASSUMING CURRENT DIVERSION RATES**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Solid Waste Generated City of Lodi | 151,020 | 154,040 | 157,121 | 160,264 | 163,469 | 166,738 | 170,073 | 173,475 | 176,944 | 180,483 | 184,093 | 187,774 | 191,530 | 195,360 | 199,268 | 203,253 |
| Solid Waste Imported | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Solid Waste Diverted City of Lodi | 81,282 | 82,908 | 84,566 | 86,257 | 87,982 | 89,742 | 91,537 | 93,367 | 95,235 | 97,140 | 99,082 | 101,064 | 103,085 | 105,147 | 107,250 | 109,395 |
| Transformation Reduction | 2,507 | 2,557 | 2,608 | 2,660 | 2,714 | 2,768 | 2,823 | 2,880 | 2,937 | 2,996 | 3,056 | 3,117 | 3,179 | 3,243 | 3,308 | 3,374 |
| Solid Waste Exported to San Joaquin County (tons) | 67,231 | 68,576 | 69,947 | 71,346 | 72,773 | 74,228 | 75,713 | 77,227 | 78,772 | 80,347 | 81,954 | 83,593 | 85,265 | 86,970 | 88,710 | 90,484 |
| Cumulative Disposal Capacity Needed for the City of Lodi cubic yards (2) (3) | 112,052 | 226,344 | 342,923 | 461,833 | 583,121 | 706,836 | 833,024 | 961,736 | 1,093,022 | 1,226,934 | 1,363,525 | 1,502,847 | 1,644,956 | 1,789,906 | 1,937,756 | 2,088,563 |
| Remaining Permitted Disposal Capacity North County Landfill (end of year) in cubic yards (2) (3) | 17,300,000 | 17,185,707 | 17,069,129 | 16,950,219 | 16,828,930 | 16,705,216 | 16,579,028 | 16,450,316 | 16,319,029 | 16,185,117 | 16,048,527 | 15,909,206 | 15,767,096 | 15,622,145 | 15,474,295 | 15,323,489 |
| Remaining Permitted Disposal Capacity North County Landfill (end of year) in tons (2) (3) | 10,380,000 | 10,311,424 | 10,241,477 | 10,170,131 | 10,097,358 | 10,023,130 | 9,947,417 | 9,870,189 | 9,791,418 | 9,711,070 | 9,629,116 | 9,545,523 | 9,460,258 | 9,373,287 | 9,284,577 | 9,194,093 |
| (1) All wastes in tons, except additional disposal capacity. (2) Based on a refuse density of 1200 pounds per cubic yard (3) Remaining and projected disposal capacity needs (in terms of landfill capacity) are dependent upon operational practices, including the compaction density achieved and the amount of soil or other material used for daily cover Capacity or airspace = Refuse ÷ Soil | | | | | | | | | | | | | | | | |

Table 8-2

**CITY OF LODI, CALIFORNIA
SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS PROJECTION (1)
ASSUMING AB 939 TARGETS ARE ACHIEVED
BY DECEMBER 31, 1994 AND DECEMBER 31, 1999**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Solid Waste Generated City of Lodi | 151,020 | 154,040 | 157,121 | 160,264 | 163,463 | 166,738 | 170,073 | 173,475 | 176,944 | 180,483 | 184,093 | 187,774 | 191,530 | 195,360 | 199,268 | 203,253 |
| Solid Waste Imported | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Solid Waste Diverted City of Lodi | 81,282 | 82,908 | 84,566 | 86,257 | 102,307 | 104,353 | 106,440 | 108,569 | 110,741 | 122,991 | 125,451 | 127,960 | 130,519 | 133,129 | 135,792 | 138,508 |
| Transformation Reduction | 2,507 | 2,557 | 2,608 | 2,660 | 2,714 | 2,491 | 2,541 | 2,592 | 2,644 | 3,199 | 3,263 | 3,328 | 3,395 | 3,463 | 3,532 | 3,603 |
| Solid Waste Exported to San Joaquin County (tons) | 67,231 | 68,576 | 69,947 | 71,346 | 58,449 | 59,618 | 60,811 | 62,027 | 63,268 | 54,292 | 55,378 | 56,485 | 57,615 | 58,767 | 59,943 | 61,142 |
| Cumulative Disposal Capacity Needed for the City of Lodi cubic yards (2) (3) | 112,052 | 226,344 | 342,923 | 461,833 | 559,249 | 658,613 | 759,964 | 863,342 | 968,788 | 1,059,275 | 1,151,571 | 1,245,714 | 1,341,739 | 1,439,685 | 1,539,589 | 1,641,492 |
| Remaining Permitted Disposal Capacity North County Landfill (end of year) in cubic yards (2) (3) | 17,300,000 | 17,185,707 | 17,068,129 | 16,950,219 | 16,852,803 | 16,753,439 | 16,652,088 | 16,548,709 | 16,443,263 | 16,352,777 | 16,260,480 | 16,166,338 | 16,070,313 | 15,972,367 | 15,872,462 | 15,770,560 |
| Remaining Permitted Disposal Capacity North County Landfill (end of year) in tons assuming only Lodi's wastes are received at San Joaquin County's North County Landfill (2) (3) | 10,380,000 | 10,311,424 | 10,241,477 | 10,170,131 | 10,111,682 | 10,052,063 | 9,991,253 | 9,929,226 | 9,865,958 | 9,811,666 | 9,756,288 | 9,699,803 | 9,642,188 | 9,583,420 | 9,523,477 | 9,462,336 |

(1) All wastes in tons, except additional disposal capacity.

(2) Based on a refuse density of 1200 pounds per cubic yard

(3) Remaining and projected disposal capacity needs (in terms of landfill capacity) are dependent upon operational practices, including the compaction density achieved and the amount of soil or other material used for daily cover

Capacity or airspace = Refuse + Soil



FUNDING

9 FUNDING COMPONENT

Adequate and long-term funding is an essential component of a successful integrated solid waste management system. Inadequate funding can cause an otherwise effective program to fail. In California, local solid waste management systems are typically funded by one or more of the following methods:

- Tipping fee. The amount charged by a transfer station, landfill, or transformation facility to accept a specified amount of waste (usually expressed in terms of tons or cubic yards).
- Property taxes. Those taxes that are levied on the person or corporation recorded on the deed of record. Property taxes have limitations, such as (1) statutory ceilings on tax rates, (2) competing public services, such as public education, (3) lack of income or economic activity to support higher taxes, and (4) lack of voter support.
- User fees. Fees applied to household waste and industrial waste. User fees assess the actual user, based on weight and volume or number of containers collected, instead of a flat fee and local tax-financial systems.

This component is intended to demonstrate how the City has sufficient funds and allocations of resources for the planning, development, and implementation of new and existing solid waste programs identified in this document. This section includes a description of the current mechanisms used to fund solid waste programs within the City and provides cost estimates for the planning, development, and implementation of new programs. In addition, this section lists future potential revenue sources and contingency revenue sources,

9.1 Current Funding Sources

The sources of funding for solid waste management activities in Lodi are refuse Collection fees and a surcharge assessed by the City. The residential and commercial refuse collection fees are issued as part of the utility bills by the City to all residents. Industrial rates have been set by CWRS, who issues its own bills. Water and electricity rates are included in the City's bill. Now that CWRS' exclusive franchise in Lodi includes industrial waste, the industrial rates will be set by the City and could be billed by either the City, as is presently done for residential and commercial customers, or by CWRS.

Rates are established annually by the City Council based upon the findings of an annual report submitted by CWRS. This rate review is submitted to the City Council for its approval. Once approved, the City adds 8 percent of CWRS' rates to the bill to cover the administrative costs and a "refuse surcharge." This surcharge is used to pay for the City's disposal fees, state-mandated closure fund payments, a percentage of one solid waste management staff person's salary, and consultation fees. (Note that the surcharge does not appear as a separate line item on the utility bill.)

The general fund is used to pay for the City's municipal leaf collection program. In 1990-1991, the City's budget for solid waste collection was \$3,403,460; the refuse surcharge was \$62,000; and leaf collection costs were \$59,675.

9.2 Estimated Program Costs

All program costs identified in each of the components are summarized in the funding component. A summary of the estimated costs and revenues for program planning and implementation are in Tables 9-1 and 9-2.

Estimated costs have been determined for each of the new or expanded programs that have been identified in this document for implementation during the short-term planning period. These are identified in each of the components and in Tables 9-1 and 9-2. Table 9-1 shows the City's estimated capital and operating costs for each of these programs, by year, for 1991 through 1995. Costs include equipment purchases and new or improved structures. Operating costs include operations and maintenance, publications, promotional materials, city staff time, and other expenses. Costs shown do not include costs that would be incurred by the residential

and commercial refuse haulers operating within City limits. Those costs are identified in Table 9-2.

One City staff person has approximately one-third of his/her time allocated for solid waste management activities. The City plans to hire another staff person to be responsible for planning, developing, and implementing new and expanded programs, especially the public education and information programs. Costs for the additional staff are included in the annual operating costs.

9.3 Revenue for New and Expanded Programs

9.3.1 Public Sources of Revenues

The new and expanded programs to be implemented during the short-term planning period in the City will be funded by adding a state-mandated surcharge to the utility bill. This surcharge will cover the costs of an additional staff person as well as the costs for the programs included in Table 9-1.

Revenue financing. The City of Lodi could obtain long-term financing for its solid waste system through the sale of revenue bonds or certificates of participation (COPs). The specific purpose of those bonds could be to finance improvements for new solid waste management programs or facilities. The feasibility of revenue financing would be dependent upon the volume of solid waste generated in the City, the City's ability to direct solid waste to the proposed facilities, and revenue from tipping fees, the sale of recyclable materials, taxes, and special assessments.

Where there are revenue shortfalls, the City will either raise its utility surcharge as necessary to cover the costs of the SRRE programs or the City they will obtain long-term revenue financing through the capital markets.

9.3.2 Private Sources of Revenues

Participation financing. As envisioned by CWRS, COP financing would be approximately \$4.3 million for the three sets of waste carts and semi-automated/automated collection vehicles. The City would purchase the refuse collection vehicles and waste carts and lease them to CWRS. Under this arrangement, the COPs would be issued by the City. Several cities, including the cities of Anaheim, Placentia, and Garden Grove have opted for COP financing to implement a solid waste collection, reduction, and recycling system.

- The COPs are a special purpose tax-exempt financing mechanism available to municipalities for qualifying facilities such as solid waste collection and recycling facilities. COPs, like municipal bonds, are securities that are underwritten and sold to investors.

The California Pollution Control Financing Authority. Another type of financing, which has applied for and received an initial resolution from CWRs, is the California Pollution Control Financing Authority (the Authority). The issuance of pollution control revenue bonds has been possible in California since the voters approved a constitutional amendment (Proposition 3) at the general election on November 7, 1972. Enabling legislation (Chapter 1257, Statutes of 1972) created the Authority, which presently consists of the State Treasury (Chairman), the State Controller, and the Director of Finance.

The purpose of the Authority is to provide California businesses with a reasonable method of financing pollution control and resource recovery facilities needed in the state. The program enables private companies to utilize funds received from the sale of Authority bonds for the acquisition, construction, or installation of pollution control and resource recovery facilities and, when possible, to meet environmental requirements imposed by public agencies.

Many bonds sold by the Authority paid interest exempt from both federal and state income taxes (Section 103 of the Federal Internal Revenue Code of 1986, as amended, and Section 17137 of the California Revenue and Taxation Code). However, tax exempt funds are no longer available through the California Pollution Control Financing Authority. Taxable loans are available for manufacturing facilities that use recyclable materials; there are no limitations for these loans. Taxable funding is limited to the useful life of the project, and the interest rate for taxable loans is the market rate. Revenues obtained through the sale of taxable bonds are used for funding the applicant's projects. These are similar to other types of private activity bonds.

Companies that have received assistance through the program include food processors, cooperatives, manufacturers, recreational facilities, waste disposal firms, metal platers, public utilities, and petroleum processors. The Authority consults with lenders and investors to arrange financing programs for specific needs. CWRs has used this type of a financing

mechanism in the past. CWRS has applied for financing from the Authority for its proposed expansion of the transfer station, MRF, and recycling center

Refuse collection rates. Each year CWRS conducts a rate review in order to adjust its fees to cover costs. CWRS submits its proposed rates to the Lodi City Council for review and approval. In essence, the City establishes refuse collection rates in Lodi. The rate setting process guarantees CWRS a reasonable rate of return. Program costs will need to be included in these rates (see Table 9-2).

The City Council recently approved a rate methodology for periodically adjusting the rates charged by CWRS for refuse collection services for

- residential refuse, recyclable material, and yard waste collection
- residential waste carts
- commercial refuse and recyclable material collection
- commercial waste carts
- industrial refuse collection

The franchise hauler will file a rate adjustment application each year. The methodology addresses allowable expenses according to the services provided as detailed above and allowable expenses which include refuse, recycling, and yard waste collection expenses; recyclable and compostable material processing expenses; transfer station charges; disposal charges; and franchise fees.

9.4 Contingency Funding Sources

Funding sources and mechanisms that could be explored by Lodi if a shortfall in solid waste management revenues occurs are as follows:

- Special taxes or assessments. These can take the form of short-term taxes or assessments to develop source reduction or recycling programs.
- Rate structure **modification**. This includes a subscribed variable, where the level of payment varies with a measure of the volume of waste disposed.
- Community development block grants. All cities and counties are eligible to apply for the economic development allocation for the community development block grant program. The City is an entitlement city which receives grants directly. Grants are made from the state to local governments, which can then loan the funds to businesses to fund specific projects. such as a particular recycling program or a business that uses or manufactures products made from recyclable materials.
- Other grant funding sources. These ~~include~~ grants from the CIWMB for new and existing household hazardous waste management programs, or from the California Department of Commerce, Office of Competitive Technology, to fund technological projects that show promise for commercialization. In 1989, federal and public agencies and institutions were awarded 29 grants from a pool of over 240 applicants.

Table 9.1
Estimated Costs, in 1991 Dollars, for the
City of Lodi's SRRE Programs
Which will be Undertaken by the Public Sector (City of Lodi)

| SRRE Programs Implemented by the City | Year implemented | Capital Costs* | Annual Operating Costs* | | | | | | | | | | Revenue Sources |
|--|---------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--|
| | | | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Source Reduction Component | | | | | | | | | | | | | |
| Rate Structure Modification | 1992 | 175. m to \$150,000 | | | | | | | | | | | City General Fund Business License Fees |
| Business License Fee Incentives | 1992 | W/A | W/A | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2500 | 12,500 | 12,500 | \$2,500 | |
| Public Education and Promotion | 1992 | Costs we included in the Public Education and Information component below | | | | | | | | | | | |
| Local Procurement Guidelines | 1993 | Costs are included in the Recycling component "Create Local Markets" program below | | | | | | | | | | | |
| Recycling Component | | | | | | | | | | | | | |
| Create Local Markets for Recycled Materials | 1994 | \$10,000 | N/A | N/A | N/A | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | Refuse Surcharge |
| Develop Zoning and Code Ordinance Amendments | 1994 | \$10,000 | N/A | N/A | N/A | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | \$2,500 | Refuse Surcharge |
| Composting Component | | | | | | | | | | | | | |
| (All programs will be privately funded.) | | | | | | | | | | | | | |
| Special Waste Component | | | | | | | | | | | | | |
| WTE Feasibility Study | 1992 | \$3,500 | N/A | | | | | | | | | | Refuse Surcharge |
| Public Education Component** | | N/A | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | \$10,000 to \$40,000 | Refuse Surcharge |

Table 91
 Estimated Costs, in 1991 Dollars, for the
 City of Lodi's SRRE Programs
 Which will be Undertaken by the Public Sector (City of Lodi)
 (Continued)

| SRRE Programs | | | Annual Operating Costs* | | | | | | | | | | Revenue |
|---|----------------------------|--|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|
| Implemented by <u>Year</u> | Year <u>Implemented</u> | Capital <u>Costs*</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1994</u> | <u>1995</u> | <u>1996</u> | <u>1997</u> | <u>1998</u> | <u>1999</u> | <u>2000</u> | <u>Sources</u> |
| Public Education and Outreach Activities | 1992 | | Costs for all public education provided above | | | | | | | | | | |
| | | Educational brochures and materials | | | | | | | | | | | |
| | | Media involvement | | | | | | | | | | | |
| | | City-sponsored newsletter | | | | | | | | | | | |
| | | Coordination with community groups | | | | | | | | | | | |
| | | Coordination with nonprofit groups | | | | | | | | | | | |
| | | Internship program (volunteer or stipend only) | | | | | | | | | | | |
| Technical Assistance Programs | 1992 | | | | | | | | | | | | |
| | | Workshops | | Ongoing | | | | | | | | | |
| | | Field Tnpr | | Ongoing | | | | | | | | | |
| | | Guideline books | | Ongoing | | | | | | | | | |
| Campaigns and Motivating Activities | 1992 | | | | | | | | | | | | |
| | | Community posters and flyers | | | | | | | | | | | |
| | | Block leader program | | | | | | | | | | | |
| | | Public recognition awards | | | | | | | | | | | |

* Capital costs will be incurred when the programs are implemented

**Costs are assumed to be equally split between the public and private sectors. The City will hire one part time employee to coordinate its efforts with the private sector

Table 9-2
Estimated Costs, in 1991 Dollars, for the
City of Lodi's SRRE Programs
Which will be Undertaken by the Private Sector (CWRS)

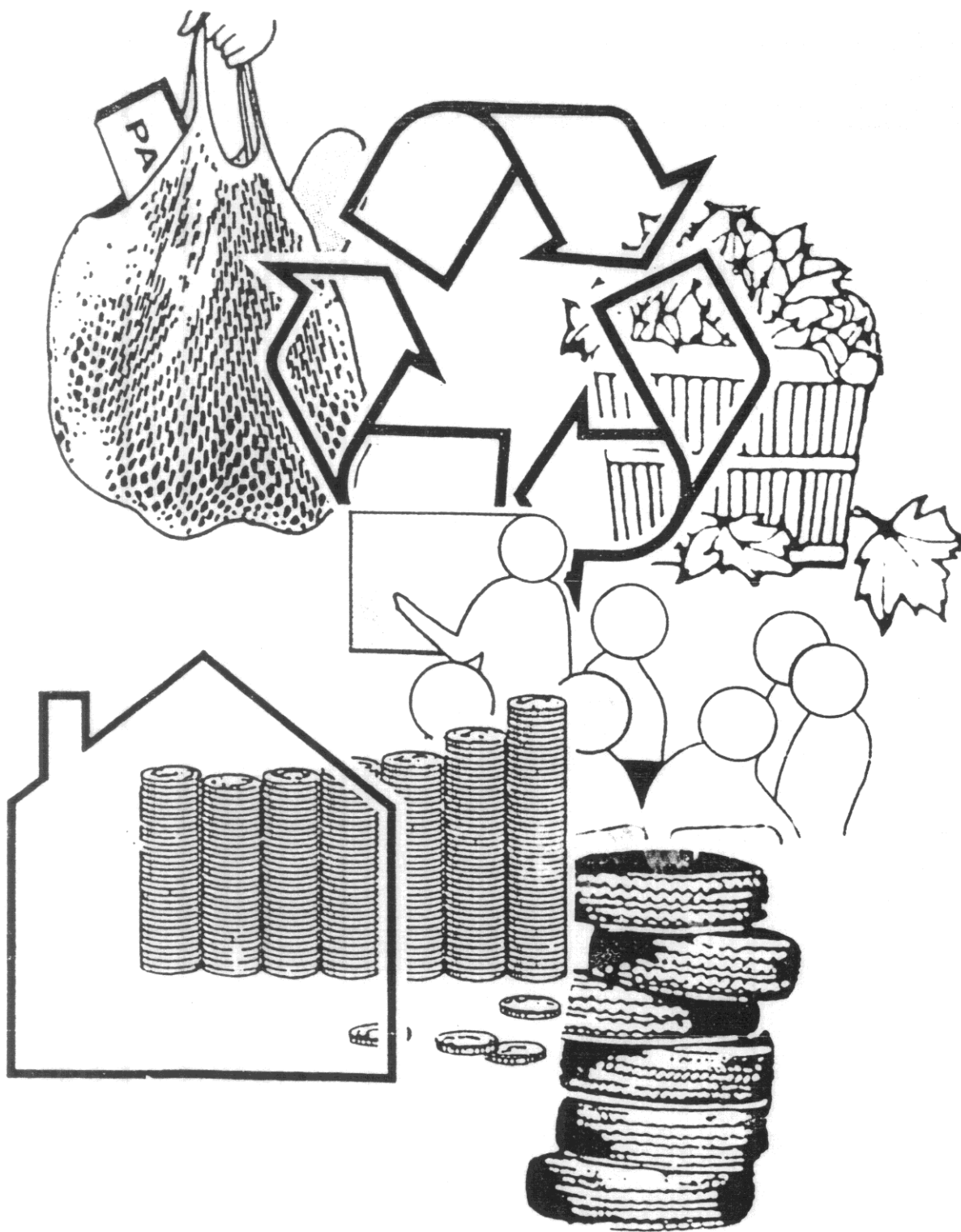
| SRRE Programs Implemented by the City | Year Implemented | Capital Costs* | Annual Operating Costs* | | | | | | | | Revenue Sources | | |
|--|---------------------|----------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------|
| | | | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Source Reduction Component | | | | | | | | | | | | | |
| Public Education and Promotion | | | | | | | | | | | | | |
| Costs are included in the Public Education and Information component below | | | | | | | | | | | | | |
| Recycling Component | | | | | | | | | | | | | |
| Expand Curbside Recycling Programs | 1994 | \$3,400,000 | N/A | N/A | Not available at this time | | | | | | | | Rates |
| Multifamily Dwelling Recycling Programs | 1993 | Not available at this time | N/A | N/A | Not available at this time | | | | | | | | Rates |
| Expand Office Paper Collection Program | 1993 | | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | \$6,000 to \$24,000 | Rates |
| Expand Materials Recovery Facility | 1992 | \$9,200,000 | N/A | N/A | Not available at this time | | | | | | | | Rates |
| Composting Component | | | | | | | | | | | | | |
| Expand CWRS windrow Composting Program | 1993 | \$1,129,000 | N/A | N/A | Not available at this time | | | | | | | | Rates |
| Expand Residential Yard Waste Collection | 1993 | \$963,900 | N/A | N/A | Not available at this time | | | | | | | | Rates |
| Special Waste Component | | | | | | | | | | | | | |
| Separate White Goods at CWRS | 1992 | Not available at this time | | | Not available at this time | | | | | | | | |
| Separate Tires at CWRS | 1992 | Not available at this time | | | Not available at this time | | | | | | | | Rates |

Table 9-2
Estimated Costs, in 1991 Dollars, for the
City of Lodi's SRRE Programs
Which will be Undertaken by the Private Sector (CWRS)
(Continued)

| SRRE Programs Implemented by the City | Year Implemented | Capital Costs* | Annual Operating Costs* | | | | | | | | | | Revenue Sources |
|---|---------------------|---|-------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| | | | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Public Education Component** | | N/A | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | \$10,000 | Rates |
| | | | to | to | to | to | to | to | to | to | to | to | |
| | | | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | \$40,000 | |
| Public Education and Outreach Activities | 1992 | Costs for all public education/information included above | | | | | | | | | | | |
| Educational brochures and materials | | | | | | | | | | | | | |
| Media involvement | | | | | | | | | | | | | |
| Speakers' bureau | | | | | | | | | | | | | |
| Newsletter | | | | | | | | | | | | | |
| Coordination with community groups | | | | | | | | | | | | | |
| Coordination with nonprofit groups | | | | | | | | | | | | | |
| School curricula | | | | | | | | | | | | | |
| Technical Assistance Programs | 1992 | | | | | | | | | | | | |
| Workshops | | | | | | | | | | | | | |
| Field Trips | | | | | | | | | | | | | |
| Guideline books | | | | | | | | | | | | | |
| Campaigns and Motivating Activities | 1992 | | | | | | | | | | | | |
| Community posters and flyers | | | | | | | | | | | | | |
| Block leader program | | | | | | | | | | | | | |
| Public recognition awards | | | | | | | | | | | | | |

* Costs are given for the high estimate listed in the SRRE text. Capital costs will be incurred when the programs are implemented

**Costs are assumed to be equally split between the public and private sectors. The City will hire one part time employee to coordinate its efforts with the private sector



INTEGRATION

10 INTEGRATION COMPONENT

10.1 Introduction

Consistent with California Code of Regulations, Title 14, Section 18748, the integration component shall explain how the source reduction, recycling, composting, and special waste components combine to achieve the mandates set forth by AB 939. This section is intended to fulfill that requirement and explain how the City of Lodi intends to promote and achieve a truly integrated waste management system.

10.2 Waste Diversion

10.2.1 Background

Many types of activities will result in landfill diversion, thereby conserving valuable landfill capacity. However, one of the primary purposes of AB 939 is to promote an awareness of what wastes are disposed of and to force people to take appropriate measures to divert all materials which can be diverted to a higher and better use rather than needlessly discarding them. This is one reason AB 939 and subsequent legislation discourages reliance on transformation or incineration as a primary measure of saving landfill capacity. Transformation still has a place in an integrated waste management system, it just should not be the central focus of that system.

Clearly, the intent of AB 939 is to focus on reducing the amount of waste materials generated and subsequently disposed of. All too often, refuse is placed at the curb and it is picked up and whisked away to the local landfill without a second thought by the waste generator. This is one reason there has been so much debate lately concerning what counts towards the diversion targets and what is normally disposed of. According to the author of AB 939, Assemblyman Byron Sher - Palo Alto, the law intended only the amount of waste that had been going into permitted landfills before January 1990 could count towards the 25 and 50 percent diversion goals.

However, the interpretation of this issue as to what counts towards diversion has been interpreted to mean that if only 1 ton of a material were disposed of in 1990, then any amount of material subsequently diverted could also count. The most obvious example of this relates to inert materials and industrial scrap metal recyclers. There are discussions occurring at the legislative level to clarify the issue in the next legislative session.

What this means, not only for Lodi, but also many other communities across the state, is that diversion of inert materials and industrial scrap metals would not count towards the 25 and 50 percent diversion goals. It could also mean that subsequent diversion targets may be measured against disposed wastes as opposed to generated wastes (Generation = Diversion + Disposal).

This subject is mentioned here, because particularly in the case of inert materials, it has a substantial impact on Lodi's diversion rate, expressed as a percent of waste generation. Lodi's diversion rate of 54 percent would be reduced to 19 percent. Therefore, Lodi's diversion programs are characterized both with and without inerts in the next section in the event subsequent legislation disallows counting them towards the City's diversion goals. Also, each of the components separately quantifies increased diversion from new programs and diversion from existing programs in the event that subsequent legislation requires diversion be measured against disposed wastes rather than generated wastes.

10.2.2 Current Diversion

Lodi's diversion rate is expressed in two different ways in this section: (1) diversion expressed as a percentage of wastes generated and (2) diversion excluding inert materials. Section 10.2.3 will quantify future expected diversion in terms of (1) and (2) described above and also in terms of wastes disposed. The third method allows no credit for existing diversion activities in Lodi; it only addressed new diversion activities and their impact on the amount of wastes disposed of.

1. Existing Diversion Expressed as a Percentage of Generated Wastes - With Inert Materials

Generation = 151,020 tons (1990)

| | | |
|--------------------|-------------|--------------|
| • Source Reduction | 267 tons | 0.18% |
| • Recycling | 69,581 tons | 46.07% |
| • Composting | 11,434 tons | <u>7.57%</u> |
| • Total | 81,282 tons | 53.82% |

2. Existing Diversion Expressed as a Percentage of Generated Wastes - Without Counting Inert Materials

Generation = 151,020 tons (1990)

| | | |
|--------------------|-------------|--------------|
| • Source Reduction | 267 tons | 0.18% |
| • Recycling | 17,344 tons | 11.46% |
| • Composting | 11,434 tons | <u>7.57%</u> |
| • Total | 29,045 tons | 19.2396 |

10.2.3 Anticipated Future Diversion

Short-term Planning Period January 1, 1991 - December 31, 1994

1. Diversion Expressed **as** a Percentage of Generated Wastes - With Inert Materials

Generation by December 31, 1994 = 176,312 tons

| | | |
|--------------------|--------------|---------------|
| • Source Reduction | 289 tons | 0.18% |
| • Recycling | 78,473 tons | 48.00% |
| • Composting | 22,038 tons | <u>13.48%</u> |
| • Total | 100,800 tons | 61.66% |

2. Diversion Expressed as a Percentage of Generated Wastes -Without Counting Inert Materials

Generation by 1995 (without inerts) = 101,520 tons

(The rate of inert diversion is assumed to remain constant for purposes of the SRRE)

| | | |
|--------------------|-------------|---------------|
| • Source Reduction | 289 tons | 0.28% |
| • Recycling | 21,930 tons | 21.60% |
| • Composting | 22,038 tons | <u>21.71%</u> |
| • Total | 44,257 tons | 43.55% |

3. New Diversion Expressed as a Percentage of Disposed Wastes - Without Counting Inert Materials

Disposal by 1995 = 59,956 tons

| | | |
|------------------------|-------------|---------------|
| • New Source Reduction | 0 tons | 0% |
| • New Recycling | 2,981 tons | 4.97% |
| • New Composting | 9,217 tons | <u>15.37%</u> |
| • Total | 12,198 tons | 20.34% |

Medium-term Planning Period: January 1, 1995 - December 31, 1999

1. Diversion Expressed as a Percentage of Generated Wastes - With Inert Materials

Generation by December 31, 1999 = 180,482 tons

| | | |
|--------------------|--------------|---------------|
| • Source Reduction | 319 tons | 0.18% |
| • Recycling | 94,556 tons | 52.39% |
| • Composting | 28,116 tons | <u>15.58%</u> |
| • Total | 122,991 tons | 68.15% |

2. Diversion Expressed as a Percentage of Generated Wastes - Without Counting Inert Materials

Generation by December 31, 1999 = 180,482 tons (without inerts)

| | | |
|--------------------|-------------|---------------|
| • Source Reduction | 31.9 tons | 0.18% |
| • Recycling | 32.128 tons | 17.80% |
| • Composting | 28.116 tons | <u>15.58%</u> |
| • Total | 60.563 tons | 33.56% |

3. New Diversion Expressed as a Percentage of Disposed Wastes - Without Counting Inert Materials

Disposal by December 31, 1999 = 54.292 tons

| | | |
|------------------------|-------------|---------------|
| • New Source Reduction | 0 tons | 0% |
| • New Recycling | 11,129 tons | 20.50% |
| • New Composting | 13,960 tons | <u>25.71%</u> |
| • Total | 25.089 tons | 46.21% |

10.3 Component Integration

The current 1990 diversion for Lodi results from the combined efforts of the City, the County, 20-20 Recycle Centers, California Waste Removal Systems, Tokay Recycling, and regional scrap metal dealers, paper brokers, inert materials recyclers, and nearby glass beneficiation facilities in Tracy. Together, they have been able to demonstrate a phenomenal 54 percent diversion rate expressed as a percentage of generated wastes. The new programs outlined in this SRRE will be undertaken by two entities: California Waste Removal Systems and the City. By the end of the medium-term time frame, they should be able to increase the current diversion rate by 14 percent to approximately a 68 percent diversion rate. Table 10-1 outlines those new programs which will be undertaken by the City and CWRS.

Finally, the City should consider requiring local businesses to report annually those materials which the City diverts and which are not collected by

CWRS. This is especially applicable to large supermarkets and industrial customers who may use their own regional centers to divert such items as cardboard, pallets, or food.

10.4 Integrated Schedule

The schedule for the short-term planning period is shown on Table 10-2. The medium-term schedule will depend upon how well the City achieves its short-term objectives and is not presented in this SRRE.

10.5 Monitoring Diversion

In order to monitor diversion and determine program effectiveness, the City will need to obtain information on quantities from a variety of sources. The City will begin to develop a database of information. To minimize impacts on recyclers, brokers, and City staff, information will be gathered semiannually. Specifically the City should require CWRS, 20-20 Recycle Centers, and Tokay Recycling to provide information on diverted quantities and waste types by generator source, as a condition of conducting business within the City. Information concerning diversion quantities from regional recyclers, brokers, and scrap metal dealers can be obtained from the County.

Table 10-1
New Program Implementation

| City to Undertake | CWRS to Underlake |
|---|---|
| <p>Source Reduction Component</p> <ul style="list-style-type: none"> • Rate structure modification • Business license fee incentives • Local procurement guidelines <p>Recycling Component</p> <ul style="list-style-type: none"> • Create local markets for recyclers • Develop zoning and code amendments <p>Composting Component</p> <ul style="list-style-type: none"> • None <p>Special Waste Component</p> <ul style="list-style-type: none"> • Waste-to-energy feasibility study <p>Education and Public Information Component</p> <ul style="list-style-type: none"> • Newsletter • Coordination with City community groups and nonprofit organizations • Community posters and fliers • Block leader program • Public recognition and awards • Internship programs <p>Funding Component</p> <ul style="list-style-type: none"> • Issue certificates of participation for CWRS' new refuse collection vehicles waste carts. Purchase carts and lease to CWRS. | <p>Source Reduction Component</p> <ul style="list-style-type: none"> • Public education <p>Recycling Component</p> <ul style="list-style-type: none"> • Multifamily recycling program <ul style="list-style-type: none"> ▪ Expand waste cart program to collection of "commingled" recyclables • Expand materials recovery facility <p>Composting Component</p> <ul style="list-style-type: none"> • Add third waste cart for yard wastes • Expand commercial/industrial collection of compostables • Expand windrow composting system <p>Special Waste Component</p> <ul style="list-style-type: none"> • White goods separation at transfer station • Tire separation at transfer station <p>Education and Public Information Component</p> <ul style="list-style-type: none"> • Educational brochures and materials • Media relations • Speakers' bureau • Waste audits • Field trips • Educational curricula • Kick-off rally • Technical assistance program • Newsletter • Community posters and fliers • Public recognition and awards <ul style="list-style-type: none"> ▪ Coordination with City community groups and nonprofit organizations <p>Funding Component</p> <ul style="list-style-type: none"> • Obtain California Pollution Control Financing Authority Bonds for MRF |
| <p>Note This table is not intended to address existing programs</p> | |

Table 10-2
Integrated Schedule for Short-term Programs

| Type of Diversion | Targeted Generator | Type of Program | Implementation Tasks | Date | Entity Responsible | Funding Source |
|-------------------|------------------------------|--------------------|---|---------------|--------------------|---|
| Source Reduction | All | Rates | • Evaluate need for inclining rate structure versus other types of rate structures. Adopt CWRS proposed new rate structure. | 1991/ 1992 | city | Collection Rates |
| Source Reduction | Commercial/ Industrial | incentive | • Evaluate need for modified business fees and subsequent incentives for source reduction | 1993 | City | General Fund or or Refuse Surcharge |
| Source Reduction | Government | Procurement | • Develop procurement guidelines | 1992 | City | General Fund |
| Recycling | Multifamily Residential | Collection | • Determine equipment needs for program • Publicize program • Startup program | 1993 | CWRS | Collection Rates |
| Recycling | Single-family Residential | Collection | • Obtain waste carts and new collection vehicles | 1994 | CWRS | Collection Rates and Certificates of Participation (City) |
| Recycling | Commercial | Collection | • Add in other waste types to present white office paper collection program as market allows | 1993 | CWRS | Collection Rates |
| Recycling | All | Materials Recovery | • Expand MRF • begin securing permits | 1993 | | Collection Rates and CPCFA Bonds |
| Recycling | All | Market Development | • Consider recycling market development zone in Lodi • Encourage clean recycling-based industries to locate in Lodi | 1993 | City | Refuse Surcharge |

**Table 10-2
Integrated Schedule for Short-term Programs
(Continued)**

| Type of Diversion | Targeted Generator | Type of Program | Implementallon Tasks | Date | Entlty Responsible | Funding Source |
|-------------------|------------------------|-------------------|---|-----------|--------------------|---|
| Recycling | All | Zoning | • Develop zoning and code amendments to require new developments to address recycling needs | 1994 | City | Refuse Surcharge |
| Composting | Residential | Collection | • Add waste cad for yard wastes | 1992 | CWRS | Certificates of Participation and Collection Rates |
| Composting | Commercial/Industrial | Collection | • Expand collection program | 1992 | CWRS | Collection Rates |
| Composting | All | Processing | • Expand windrow composting system • Purchase grinder and new Scarab compost turner | 1993/1994 | CWRS | Collection Rates |
| Recycling | All | Separation | • Implement tire separation and storage at Lodi Transfer Station | 1992 | CWRS | Collection Rates and Tipping Fees at Transfer Station |
| Recycling | Residential Commercial | Separation | • Reinstltute white goods separation and processing at Lodi Transfer Station | 1992 | | Collection Rates and Tipping Fees at Transfer |
| Transformation | All | Feasibility Study | • Evaluate feasibility and determine follow-up needs, if any | 1992 | city | Refuse Surcharge and General Fund |

Table 10-2
Integrated Schedule for Short-term Programs
(Continued)

| Type of Diversion | Targeted Generator | Type of Program | Implementation Tasks | Date | Entity Responsible | Funding Source |
|-------------------|-----------------------|----------------------|---|--------------|--------------------|-----------------------------------|
| All | All | Public Education | • Educational brochures and materials | 1992/1993 | CWRS | Collection Rates |
| All | All | Public Information | • Use media to inform residents about CWRS' upcoming programs | 1992 | CWRS | Collection Rates |
| All | All | Public Information | • Expand CWRS' Speakers' bureau to include City staff and other recyclers knowledgeable in solid waste issues • Have kick-off rally to introduce CWRS' expanded programs | 1992 | CWRS | Collection Rates |
| All | Residential | Public Information | • Add discussion on solid waste issues to City newsletter • Issue CWRS newsletters on a regular basis | 1992 1992 | City CWRS | General Fund Collection Rates |
| All | All | Public Information | • Work with local clinic groups to disseminate information | 1992 | city | Refuse Surcharge and General Fund |
| All | Commercial/Industrial | Technical Assistance | • Provide waste audits to all commercial and industrial Customers • Develop technical assistance program and guideline booklets | 1993 1993 | CWRS | Collection Rates |
| All | All | Public Information | • Develop posters and fliers • Establish block leadership program • Develop City-sponsored awards and recognition program • Establish student internship program | 1992 | city | Refuse Surcharge and General Fund |

11 EMCON STATEMENT OF LIMITATIONS

The EMCON services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty express or implied, is made. These services were performed consistent with EMCON's agreement with the City of Lodi. This report is solely for the use and information of the City unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. EMCON does not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

NEGATIVE DECLARATION

Notice is hereby given that the City of Lodi Planning Department has **determined** that the following **proposal will** have no "Significant Impact on the **Environment**". **Supporting** documentation is available in the **form** of a 'Preliminary Environmental **Assessment**' and is available for public review in the Planning Department Office, City Hall Building, 221 W. Pine **Street**. Anyone **wishing** to appeal the issuance of this **Declaration to the** Planning **Commission** may do so no later than **the** date indicated as 'Last date to Appeal'.

Date Jan. 6, 1992 Project Title: City of Lodi Source Reduction and Recycling Element

Responsible Agency: Lodi Planning Dept. Contact Person: David Morimoto

NAME OF PERSON, FIRM, OR AGENCY UNDERTAKING PROJECT:

City of Lodi

| Address: | city: | County: |
|-----------------------------|---------------------------|--------------------|
| <u>221 West Pine Street</u> | <u>Lodi</u> | <u>San Joaquin</u> |
| Area We : <u>209</u> | Phone; <u>333-6711</u> | |

PROJECT DESCRIPTION OF **NATURE, PURPOSE, AND LOCATION**

The purpose of *the* source reduction and recycling element (**SRRE**) is to provide the

City of Lodi and the City's solid waste management task force (SWAM) with a current

comprehensive update on the status of solid waste **management** in the City and to

outline the City's plan to achieve and exceed the landfill diversion goals **mandated**

by the State of California. The program will be implemented City-wide.

Project Location City
LODI

Project location County
SAN JOAQUIN COUNTY

Last Date to Appeal:

February 3, 1992

Address Where Preliminary **Environment**
Assessment is Available:

LODI CITY PLANNING DEPT.
221 W. Pine St., Lodi, CA 95240
Phone: (209) 334-5634

PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA,

County of San Joaquin.

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the Lodi News-Sentinel, a newspaper of general circulation, printed and published daily, except Sundays and holidays, in the City of Lodi, California, County of San Joaquin, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court, Department 3, of the County of San Joaquin, State of California, under the date of May 26th, 1953, Case Number 65990; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

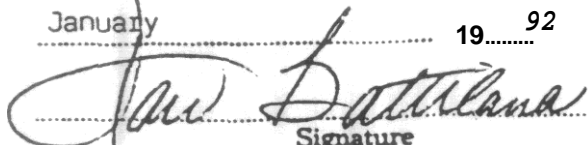
January 15,

all in the year 19⁹².....

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Lodi, California, this15th day of

January 19⁹²


Signature

This space is for the County Clerk's Filing Stamp

Proof of Publication of

City of Lodi Source Reduction and Recycling Element

NOTICE OF NEGATIVE
DECLARATION FOR
CITY OF LODI SOURCE REDUCTION AND
RECYCLING ELEMENT

Notice is hereby given that the Community Development Director has filed a Negative Declaration for the City of Lodi Source Reduction and Recycling Element. The purpose of this element is to provide the City of Lodi and the City's solid waste management task force with a current comprehensive update on the status of solid waste management in the City and to outline the City's plan to achieve and exceed the landfill diversion goals mandated by the State of California.

Information regarding this item may be obtained in the office of the Community Development Director at 221 West Pine Street, Lodi, California. All interested persons are invited to present their views and comments on the Negative Declaration. Written statements may be filed with the Community Development Director at any time prior to February 3, 1992.

By Order of the City of Lodi,
JAMES B. SCHROEDER, Director
Community Development Department
Dated: January 13, 1992

Jan. 15, 1992

— 2541

PROOF OF PUBLICATION

NOTICE OF PUBLIC HEARING
February 5, 1992

NOTICE IS HEREBY GIVEN that on Wednesday, February 5, 1992 at the hour of 7:30 p.m., or as soon thereafter as the matter may be heard, the Lodi City Council will conduct a public hearing at the Carnegie Forum, 305 West Pine Street, Lodi. to consider the following matter:

Public ~~comments~~ on the Final Draft of the City of Lodi Source Reduction and Recycling Element (SRRE).

All interested persons are invited to present their views and ~~comments~~ on this matter. Written statements may be filed with the City Clerk at any time prior to the hearing scheduled herein, and oral statements may be made at said hearing.

If you challenge the subject matter in court, you may be limited to raising only those issues you or someone else raised at the Public Hearing described in this notice or in written correspondence delivered to the City Clerk, 221 West Pine Street, at or prior to the Public Hearing.

For information regarding this Public Hearing please contact Kirk J. Evans at (209) 333-6700.

By Order Of the Lodi City Council:


Alice M. Reinche
City Clerk

Dated: December 18, 1991

Approved as to form:


Bobby W. McNatt
City Attorney